

Query Management Facility

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11.1 Introduction

Query Management Facility (QMF) is a powerful query and reporting tool. QMF allows you to enter a request to retrieve data from a database manager. The request you enter consists of simple English-like statements describing the data you want and the action (select, create, update, insert, or delete) you want to perform. The database manager returns the information to QMF when you request data. The data can then be formatted into formal reports using QMF's forms function.

11.1.1 Structured Query Language

The request you issue to the database manager is called a query. QMF offers three types of queries:

- Structured Query Language (SQL)
- Prompted Query
- Query By Example (QBE)

This chapter discusses all three types of queries; however, it goes into the most detail about Structured Query Language.

- **Structured Query Language**—SQL is an English-like language used for writing queries. SQL allows you to retrieve, create, and maintain data located in the database. Using SQL, you type a set of English-like instructions to the database manager. From these instructions, the database manager takes the action requested and returns the data to you. SQL queries provide you with the most flexibility in your query writing.
- **Prompted Query**—Prompted Query employs a set of prompts, which ask you to respond to fill-in-the-blank questions, after which the system generates the appropriate query statements. Prompted Query is very simple to use and is great for beginners or occasional QMF users. You do not need to know SQL syntax to use Prompted Query.
- **Query By Example**—QBE is another method of extracting data from the database. This method lets you create queries with relatively few keystrokes. This chapter does not discuss QBE in detail. However, for those users already familiar with the method, it discusses how to customize to a QBE environment.

11.1.2 Database 2

Database 2 (DB2) is a relational database management system. DB2 provides a central place to store data and processes the SQL request issued from QMF against that store of data. The data stored in DB2 may be shared among authorized users. The data can be accessed using any of the three types of queries available in QMF.

Data is arranged in tables. These tables have names, and you must know the names of the tables that contain the data you need.

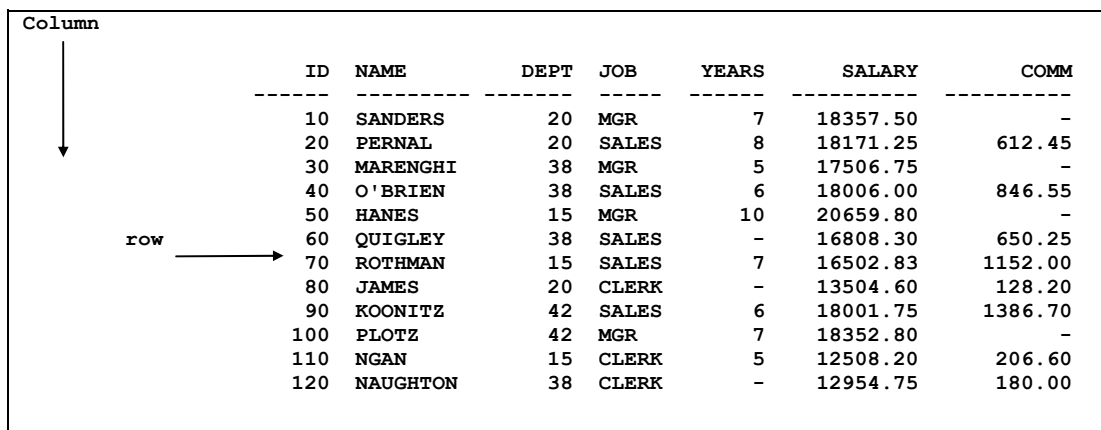
The data in a table is arranged in columns and rows. All columns are referred to by the names they were given when the table was created.

Columns:

- Appear vertically on the screen
- Contain data of the same kind
- Have names which appear at the top

Rows:

- Appear horizontally on the screen
- Contain different kinds of data about a single item
- Have no headings



The diagram shows a table with 8 columns and 12 rows. A vertical arrow on the left points down and is labeled 'Column'. A horizontal arrow on the left points right and is labeled 'row'.

ID	NAME	DEPT	JOB	YEARS	SALARY	COMM
10	SANDERS	20	MGR	7	18357.50	-
20	PERNAL	20	SALES	8	18171.25	612.45
30	MARENGHI	38	MGR	5	17506.75	-
40	O'BRIEN	38	SALES	6	18006.00	846.55
50	HANES	15	MGR	10	20659.80	-
60	QUIGLEY	38	SALES	-	16808.30	650.25
70	ROTHMAN	15	SALES	7	16502.83	1152.00
80	JAMES	20	CLERK	-	13504.60	128.20
90	KOONITZ	42	SALES	6	18001.75	1386.70
100	PLOTZ	42	MGR	7	18352.80	-
110	NGAN	15	CLERK	5	12508.20	206.60
120	NAUGHTON	38	CLERK	-	12954.75	180.00

Figure 11-1, Table Sample

Figure 11-1 shows a typical table containing personnel information. Each row represents an employee. The information stored in the table for each employee is shown in columns: Employee ID, Last Name, Department Assignment, etc. All tables in a database have this formatted arrangement of rows and columns regardless of content.

Examples in this chapter use a sample DB2 table called LOAN, which lists loan amounts with associated data. The layout of LOAN is shown in Figure 11-2. Other tables will be introduced as more complex queries are discussed.

NO	DT	FFEL DUP ID	PER BEG DT	PER END DT	CURR MAT DT	ACAD LVL	CURR LOAN STAT
37000002	1980-01-01	A	1979-09-01	1980-06-30	1987-09-01	1	PF
37000002	1981-10-08	A	1981-09-01	1982-04-30	1987-09-01	3	PF
37000002	1983-03-24	A	1983-01-01	1983-04-30	1987-09-01	4	PF
37000003	1991-09-10	A	1991-08-21	1992-01-20	1992-08-01	1	CA
37000004	1987-09-14	A	1987-01-05	1987-09-15	1988-04-01	5	DU
37000005	1980-09-30	A	1980-09-01	1981-06-30	1981-11-01	3	DC
37000006	1992-11-03	A	1992-09-21	1993-06-15	1993-11-28	1	RP
37000007	1990-01-16	A	1989-09-01	1990-05-30	1991-12-01	A	RP
37000007	1994-07-26	A	1994-05-23	1994-08-12	1995-11-13	D	ID
37000007	1994-07-26	A	1994-05-23	1994-08-12	1995-11-13	D	ID
1=Help	2=	3=End	4=Print	5=Chart	6=Query		
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=		
OK, this is the REPORT from your RUN command.							
COMMAND ==>				SCROLL ==> PAGE			

Figure 11-2, Loan Table

11.1.3 The Interaction between QMF, SQL, and DB2

QMF contains no data, but simply provides a place for you to enter a query and submit the query to the database manager, DB2. A query written in QMF uses SQL.

There are five QMF areas or object types:

1. **Profile**—Contains the QMF user profile. A profile details information about the QMF environment. Options such as case, language (query type), the number of lines on a printed report, width of a printed report, and printer with default settings are changed on this screen. The QMF command SHOW PROFILE displays this information.
2. **Query**—Contains the query that is being written or the most recent query that was run. When the command SHOW QUERY is entered or the **Query** key is pressed, the contents of the current query are displayed. All queries are written from this panel.
3. **Data**—Contains the data selected in the most recent query run. The data is not accessed directly; instead, the SHOW REPORT command shows the data formatted by the current form.
4. **Form**—Contains the format of how data is to be presented. When the SHOW FORM command is entered, the current form is displayed.
5. **PROC**—Contains the current procedure being written or the most recent procedure. A procedure contains a series of QMF commands with one RUN command. The SHOW PROC command displays the current contents of PROC. A procedure is very much like a macro in a word processing environment. It contains many QMF commands that are run together.

Objects in the database storage areas are temporary. You have to take special actions to save them or they disappear, either when you exit QMF or when you write something else over it. We discuss how to save the objects in temporary storage for later use.

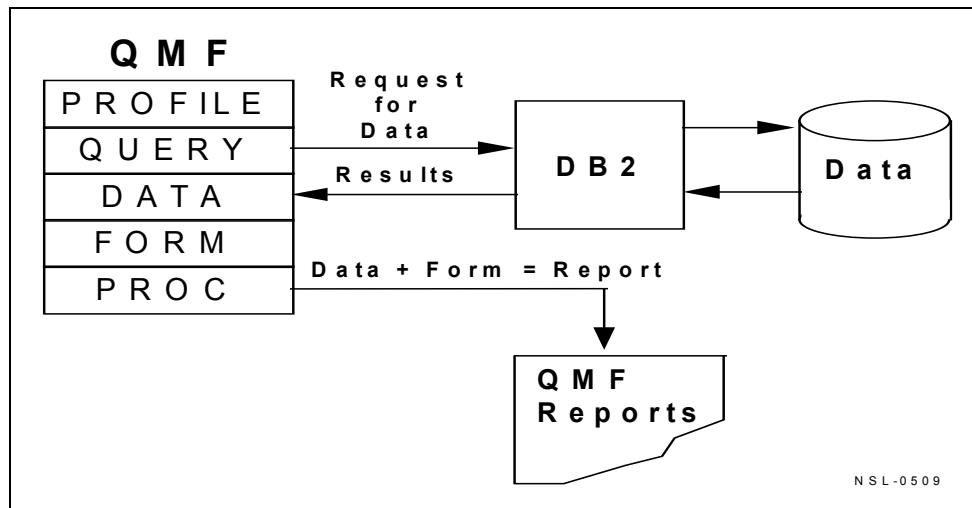


Figure 11–3, QMF Data Flow

DB2 is where the data is located. After the query is submitted, DB2 determines whether you are authorized to use the data. If you are authorized, DB2 selects the data and returns it to QMF. QMF then combines the data with a format to create a report. Figure 11–3 illustrates this process.

11.2 Logon

All users of NSLDS must be authorized by ED. Procedures for obtaining authorization to use the system are covered in Chapter 2 of this User Documentation.

GAs, schools, PIC, and ED access the NSLDS in different ways. GA and school users access the NSLDS mainframe through SAIG. The SAIG contractor provides schools and GAs with documentation for accessing NSLDS online functions via NET*CONNECT and batch files via EDConnect. PIC users access the NSLDS mainframe through the contractor network from the NCS Information Services Division menu. See Section 11.10 for details.

ED Users

ED users at Department Headquarters and regional offices access the NSLDS mainframe through ED's Local Area Network (EDNet LAN).

To log on to the EDNet LAN:

1. Double-click the AttachMate icon (Figure 11–4) that appears on your desktop or Start menu.



Figure 11–4, AttachMate Icon

The Welcome to NSL System screen displays (Figure 11–5). Your cursor appears at an invisible field below the list of available options.

2. Type **A** to select the TSO (Time Sharing Option) option and press **ENTER**.

```
WELCOME TO NSL SYSTEM - CSC MERIDEN - OS/390

*****
* THIS SYSTEM IS LIMITED TO ACCESS BY AUTHORIZED PERSONNEL, FOR APPROVED USES *
* ONLY. ACCESS BY OTHERS IS PROHIBITED AND UNAUTHORIZED.                  *
*****

ENTER DESIRED OPTION:

A. TSO
B. NASN
C. CICSNSLP
D. CICSNSLT
E. NSLPCSM
F. OMVTAMN
G. OM2NMVS

█
```

Figure 11–5, Welcome to NSL System Screen

The Enter Userid screen displays (Figure 11–6). Your cursor appears below the prompt.

3. Type your **User ID** and press **ENTER**.

```
IKJ56700A ENTER USERID -
█
```

Figure 11–6, ENTER USERID Prompt

The TSO/E Logon screen (Figure 11–7) displays. Your User ID automatically displays in the Userid field, and the cursor advances to the Password field.

4. Type your **Password** in the Password field and press **ENTER**.

Your password is not displayed as you type, but the cursor advances across the screen. The only information you must type on this screen is your password.

You use the same password that you use for logging on to the NSLDS Web site. See chapter 3 for password tips.

```
----- TSO/E LOGON -----  
  
Enter LOGON parameters below:                RACF LOGON parameters:  
  
Userid    ==> Z@Z  
  
Password  ==>  
  
Procedure ==>  
  
Acct Nmbr ==>  
  
Size      ==> 4096  
  
Perform   ==>  
  
Command   ==>  
  
Enter an 'S' before each option desired below:  
      -Nomail      -Nonotice      -Reconnect      -OIDcard  
  
PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow  
You may request specific help information by entering a '?' in any entry field
```

Figure 11–7, TSO/E Logon Screen

Upon successful logon, the NSLDS Disclosure Statement and Monitoring Notice screen displays (Figure 11–8). All information in the NSLDS is protected by Federal regulations under the Privacy Act of 1974 (as amended). You should familiarize yourself with these regulations.

```

*****
*
*          YOU ARE LOGGED ONTO NSLDS TSO AT CSC IN MERIDEN, CT          *
*                                                                 *
*****

Questions should be directed to the NSLDS Customer Service Center at
800.999.8219

                          Disclosure Statement

The user understands that the Department of Education, its agents and
Sub-contractors have signed up to meet the requirements of the "PRIVACY ACT of
1974" (as amended). As such, by entering this system, the user hereby verifies
that he/she has read the "PRIVACY ACT of 1974" (as amended), that the user
understands the requirements of the act, and that the user has no remaining
unanswered questions.

                          Monitoring Notice

This system is for the use of authorized users only. Individuals using this
Computer system without authority, are subject to having all of their
Activities on this system monitored and recorded by system personnel. In the
Course of monitoring individuals improperly using this system or in the course
Of system maintenance, the activities of authorized users may also be
Monitored. Anyone using this system expressly consents to such monitoring and
Is advised that if such monitoring reveals possible evidence of criminal
Activity, system personnel may provide the evidence of such monitoring to law
Enforcement officials.
***

```

Figure 11–8, Disclosure Statement and Monitoring Notice Screen

The Disclosure Statement and Monitoring Notice are contained on two screens.

5. Press **Enter** to move from the first screen to the second screen.

6. Press **Enter** again to continue.

When you have successfully logged on, the system displays the NSLDS—ISPF/PDF Primary Option Menu screen (Figure 11–9).

```
----- NSLDS - ISPF/PDF PRIMARY OPTION MENU -----
OPTION ==>

  0 ISPF PARMs - Specify terminal and user parameters  USERID - Z@Z
  1 BROWSE    - Display source data or output listings  TIME    - 11:34
  6 COMMAND   - Enter TSO Command, CLIST, or REXX exec  TERMINAL - 3278
  8 SDSF      - System Display and Search Facility      PF KEYS  - 12
  D DOWNLOAD  - List data sets for download to PC        DATE    - 98/09/07
  P PRF       - Platinum Report Facility                JULIAN   - 98.250
  Q QMF       - Query Management Facility
  R RMDS      - Report Management and Distribution System
  S SORT      - Sort facility
  T TUTORIAL  - Display information about ISPF/PDF
  X EXIT      - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
```

Figure 11–9, NSLDS—ISPF/PDF Primary Option Menu

11.2.1 Changing Your Password

When you log on to TSO for the first time, your initial password expires. You must change your password at this time.

The screen displays the following message near the top of the screen, “IKJ56415I CURRENT PASSWORD HAS EXPIRED—PLEASE ENTER NEW PASSWORD” (Figure 11–10).

To change your password:

1. Type your **New Password** in the New Password field.

Your password is not displayed as you type, but the cursor advances across the screen.

```
----- TSO/E LOGON -----
IKJ56415I CURRENT PASSWORD HAS EXPIRED - PLEASE ENTER NEW PASSWORD

Enter LOGON parameters below:                                RACF LOGON parameters:

Userid   ==> Z@Z
Password ==>
Procedure ==>
Acct Nmbr ==>
Size     ==> 4096
Perform  ==>
Command  ==>

Enter an 'S' before each option desired below:
      -Nomail      -Nonotice      -Reconnect      -OIDcard

PF1/PF13 ==> Help   PF3/PF15 ==> Logoff   PA1 ==> Attention   PA2 ==> Reshow
You may request specific help information by entering a '?' in any entry field
```

Figure 11–10, Current Password Expired Message

2. Press **Enter**. The screen displays the following message, “IKJ56447A Reenter the new password in the NEW PASSWORD field for verification”, and the cursor remains in the New Password field (Figure 11–11).

```
----- TSO/E LOGON -----
IKJ56447A Reenter the new password in the NEW PASSWORD field for verification

Enter LOGON parameters below:                                RACF LOGON parameters:

Userid    ==> z@z

Password  ==>                                           *New Password ==> █

Procedure ==>                                           Group Ident  ==>

Acct Nbr  ==>

Size      ==> 4096

Perform   ==>

Command   ==>

Enter an 'S' before each option desired below:
      -Nomail      -Nonotice      -Reconnect      -OIDcard

PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow
You may request specific help information by entering a '?' in any entry field
```

Figure 11–11, Reenter New Password Message

3. Retype your **New Password** exactly as you did before and press **Enter**.

Your password is not displayed as you type, but the cursor advances across the screen.

11.2.2 Invalid User ID or Password

If you have entered an invalid User ID or password, the screen displays an informational message at the top of the screen (Figure 11–12).

```
----- TSO/E LOGON -----
IKJ56421I PASSWORD NOT AUTHORIZED FOR USERID
IKJ56429A REENTER -
Enter LOGON parameters below:                RACF LOGON parameters:

Userid    ==> Z@Z
Password  ==>
Procedure ==>
Acct Nbr  ==>
Size      ==> 4096
Perform   ==>
Command   ==>

Enter an 'S' before each option desired below:
      -Nomail      -Nonnotice      -Reconnect      -OIDcard

PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow
You may request specific help information by entering a '?' in any entry field
```

Figure 11–12, Invalid User ID Message

- You may attempt to log on three times.
- After three unsuccessful attempts, an “Invalid Sign-on attempt” message displays and then you must contact the Customer Service Center at 1-800-999-8219 to request that your password be reset.
- After your password is reset, repeat the steps in Section 11.2.1.

11.2.3 Starting QMF

1. Type **Q** at the “Option” prompt on the NSLDS—ISPF/PDF Primary Option Menu (Figure 11–13). Press **Enter**.

```

----- NSLDS - ISPF/PDF PRIMARY OPTION MENU -----
OPTION ==> Q

 0 ISPF PARMS - Specify terminal and user parameters   USERID - SZP
 1 BROWSE     - Display source data or output listings TIME   - 17:34
 6 COMMAND    - Enter TSO Command, CLIST, or REXX exec  TERMINAL - 3278
 8 SDSF       - System Display and Search Facility      PF KEYS  - 24
 D DOWNLOAD   - List data sets for download to PC       DATE    - 02/01/15
 P PRF        - Platinum Report Facility              JULIAN   - 02.015
 Q QMF        - Query Management Facility
 R RMDS       - Report Management and Distribution System
 S SORT       - Sort facility
 T TUTORIAL   - Display information about ISPF/PDF
 X EXIT       - Terminate ISPF using log and list defaults

Enter END command to terminate ISPF.
F1=HELP      F2=SPLIT    F3=END      F4=RETURN   F5=RFIND    F6=RCHANGE
F7=UP        F8=DOWN     F9=SWAP     F10=LEFT    F11=RIGHT   F12=RETRIEVE

```

Figure 11–13, NSLDS—ISPF/PDF Primary Option Menu

The QMF Home panel displays (Figure 11–14).

```

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-----
QMF HOME PANEL
Version 3 Release 1.1

Query
Management
Facility

***** ** ** *****
** ** *** ** **
** ** **** ** **
** ** ** ** ** ** **
** ** ** ** ** ** **
***** ** ** ** **
*

-----
Type command on command line or use PF keys. For help, press PF1 or type HELP.

1=Help      2=List      3=End      4=Show      5=Chart      6=Query
7=Retrieve   8=Edit Table  9=Form    10=Proc     11=Profile   12=Report
OK, you may enter a command.
COMMAND ==>

```

Figure 11–14, QMF Home Panel

At the bottom of the QMF Home panel, you see:

- **Function Keys**—A function key performs a single operation. You can eliminate keystrokes by pressing a single function key to start the operation desired. We do not, however, refer to these keys as function keys when referring to them by name. For instance, when this documentation prompts you to press the function key that displays your profile, it does so in this way: “Press the **Profile** key.”

By looking at the function keys available on this panel in Figure 11–14, you see that the PF11 key represents the Profile function. Press **PF11** to use the Profile function. Familiarize yourself with the functions displayed at the bottom of each QMF panel. On a PC, the PF keys correspond to the F keys on your keyboard. This helps you to know which key to press for a specific function. A function key list for each panel in QMF is provided in Section 11.8.4.

The function keys displayed at the bottom of your screen depend on the panel being viewed. PF1 is always Help and PF3 is always End, but the others change depending on the requirements of the panel, and sometimes End may not appear.

- **Message Line**—On this line, QMF tells you what was accomplished by the last operation you started, or what you can do next. Errors are also displayed here.
- **Command Line**—If no function key starts the operation you want to do next, you can tell QMF what to do by typing a command on this line, after the arrow, and pressing **Enter**. A list of available QMF commands is provided in Section 11.8.5.

11.3 SQL Queries

SQL is a simple but powerful query language. It does not provide specific prompts to direct your navigation, but when you learn its few basic rules for writing, you can discover how easily and quickly SQL works.

When using SQL you must know the following information:

- The name of the table you want the data from
- The names of the columns
- The row conditions you want to specify
- The sequence in which you want the data to appear (for example, ascending by name)

For some examples, we are using the SCHOOL table. All of the table names available in NSLDS are listed in Section 10.5.

11.3.1 Creating a SQL Query

Queries consist of four basic statements:

SELECT	Specifies the columns to select from the database (required).
FROM	Specifies the table(s) in which the columns exist (required).
WHERE	Specifies conditions each row must meet before being selected (optional).
ORDER BY	Specifies the order in which the data is sorted (optional).

SQL queries are English-like requests issued to the database manager to select the requested data for viewing and a formal report. The SQL query is typed on the Query panel in QMF.

1. From the QMF Home Panel, press the **Query** key or type **SHOW QUERY** at the Command prompt. The SQL Query panel, where all queries are written, displays (Figure 11–15).

SQL QUERY	LINE 1
*** END ***	
1=Help 2=Run 3=End 4= 5=Chart 6=Draw	
7=Backward 8=Forward 9=Form 10=Insert 11=Delete 12=Report	
OK, QUERY is displayed.	
COMMAND ==>	SCROLL ==> PAGE

Figure 11–15, SQL Query Panel

2. Press the **Home** key to advance your cursor to the first query input position.
3. Enter the desired **SQL statements** in the empty area between SQL QUERY and *** END ***. The statements typed here provide instructions to the database manager.

You do not have to type each statement on a separate line. The examples in this appendix are displayed this way for clarity; but you can type straight across the panel or break a line between any two words. Use the **Insert** and **Delete** keys to insert or delete entire lines. You may also add extra spaces between words or before a line if desired. You can type the query in either uppercase or lowercase. The QMF profile is set to automatically translate input into uppercase.

4. Press **Enter** to toggle your cursor between the “Command” prompt and the top of the panel.

11.3.1.1 Order by Selecting All Columns from a Table

You can select all of the columns in a table by typing an asterisk (*) after the SELECT statement. The columns display from left to right in the order in which they occur in the database table.

In Figure 11–16, the query entered is SELECT * FROM SCHOOL. Each statement in the SQL query is defined below.

```

SQL QUERY                                MODIFIED    LINE 1

SELECT *
FROM SCHOOL

*** END ***

1=Help      2=Run      3=End      4=Print    5=Chart    6=Draw
7=Backward  8=Forward  9=Form    10=Insert  11=Delete  12=Report
OK, cursor positioned.
COMMAND ===>                                SCROLL ===>
PAGE

```

Figure 11–16, Select ALL Statement in SQL Query Panel

SELECT * This statement tells DB2 which columns you want to view. In this example, the wild card character * is used to select all columns in the LOAN table.

If you want to select specific columns and exclude others, use the SELECT statement followed by the names of the columns desired in the order (from left to right) you want them to be displayed in your report. Use commas (,) to separate the column names.

FROM SCHOOL This statement tells DB2 where the columns are located. This is not the best example because there are over 65 million loans in the NSLDS LOAN table. This query should not be used since it would report all of these loans. It is better to write a query that produces unique, meaningful results. Examples of these are described later.

When you have finished entering the query, you must enter the RUN command to process it.

11.3.2 Running a Query

A command is a QMF instruction to perform an action. To process the query, type **RUN** or press the **Run** key.

When you run a query, a special panel, the Database Status Panel, displays (Figure 11–17).

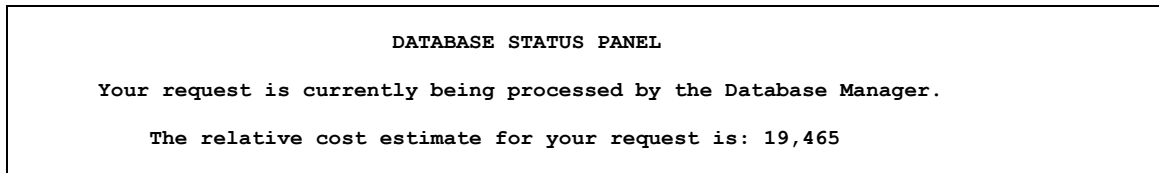


Figure 11–17, Database Status Panel

The cost estimate displayed on the Database Status Panel is an indicator of how hard the database manager has to work to process your request. The lowest cost estimate is ‘1’; however, you may issue requests, which produce a higher estimate. These estimates are seldom precise. If you are expecting a few lines of output and your query takes more than a few minutes, call the CSC for assistance. If you are expecting many rows of output, and therefore, a long run, you should still contact the CSC for assistance to improve your query’s efficiency. You may cancel a query that is taking too long at any time. For more information on canceling queries, refer to Section 11.7.11.1, Interrupting a Query.

11.3.2.1 Q.ERROR Log Handling

If you receive an error message when running or printing a query, that error is logged in the Q.ERROR_LOG. You should call the Customer Service Center (CSC) for assistance correcting that error and for advice on how to avoid making the same error in the future.

11.3.3 Viewing the Query Results: The Report

After running a query, you should see a Report panel similar to that shown in Figure 11–18.

REPORT		LINE 1		POS 1		79	
NO	DT	FFEL DUP ID	PER BEG DT	PER END DT	CURR MAT DT	ACAD LVL	
-----	-----	----	-----	-----	-----	----	
37000002	1980-01-01	A	1979-09-01	1980-06-30	1987-09-01	1	
37000002	1981-10-08	A	1981-09-01	1982-04-30	1987-09-01	3	
37000002	1983-03-24	A	1983-01-01	1983-04-30	1987-09-01	4	
37000003	1991-09-10	A	1991-08-21	1992-01-20	1992-08-01	1	
37000004	1987-09-14	A	1987-01-05	1987-09-15	1988-04-01	5	
37000005	1980-09-30	A	1980-09-01	1981-06-30	1981-11-01	3	
37000006	1992-11-03	A	1992-09-21	1993-06-15	1993-11-28	1	
37000007	1990-01-16	A	1989-09-01	1990-05-30	1991-12-01	A	
37000007	1994-07-26	A	1994-05-23	1994-08-12	1995-11-13	D	
37000007	1994-07-26	A	1994-05-23	1994-08-12	1995-11-13	D	
37000008	1988-06-08	A	1988-01-12	1988-04-29	1992-11-01	1	
37000008	1988-10-10	A	1988-08-25	1988-12-17	1992-11-01	1	
1=Help		2=		3=End		4=Print	
5=Chart		6=Query		7=Backward		8=Forward	
9=Form		10=Left		11=Right		12=	
OK, this is the REPORT from your RUN command.							
COMMAND ==>				SCROLL ==> PAGE			

Figure 11–18, Report Panel

REPORT is the title of the panel that you see. Running a query that retrieves data from the database results in a report. The report body is everything from the column headings immediately above the columns of data to ***** END ***** is considered the body of the report.

Because this is a lengthy report, all the data cannot be shown on one screen. To scroll in any direction, type the commands **BACKWARD**, **FORWARD**, **LEFT**, or **RIGHT**; or press the corresponding function key. If you want to scroll directly to the top or bottom of your report, type **TOP** or **BOTTOM**, respectively, at the Command prompt, and press **Enter**.

1. Press the **Forward** key to view the rest of the report.
2. If ***** END ***** is still not displayed on your screen, press the **Forward** key or type **FORWARD** to view the remainder of the report (Figure 11–19).

REPORT			LINE 26080 POS 1 79								
			FFEL DUP ID	PER BEG DT	PER END DT	CURR MAT DT	ACAD LVL				
NO	DT		ID	DT	DT	DT	LVL				
717012672	1990-11-13		A	1990-08-27	1991-05-14	1995-07-01	1				
717012672	1992-02-07		A	1992-01-21	1992-05-11	1995-07-01	2				
717012672	1992-08-04		A	1992-08-31	1993-05-17	1995-07-01	2				
717012672	1993-08-30		A	1993-08-30	1994-05-16	1995-07-01	3				
717012673	1990-05-18		A	1990-01-15	1990-08-16	1991-12-01	1				
717012673	1990-07-23		A	1990-08-27	1991-05-14	1991-12-01	1				
717012674	1984-08-21		A	1984-08-01	1985-06-30	1986-03-01	4				
717012675	1989-06-05		A	1989-06-26	1989-08-18	1990-03-01	1				
717012675	1989-06-05		A	1989-06-26	1989-08-18	1989-06-08	1				
717012676	1981-10-30		A	1981-09-01	1982-05-31	1984-03-11	1				
777777777	1990-01-01		A	1993-05-17	1993-08-13	1993-06-07	B				
*** END ***											
1=Help		2=		3=End		4=Print		5=Chart		6=Query	
7=Backward		8=Forward		9=Form		10=Left		11=Right		12=	
OK, FORWARD performed. Please proceed.											
COMMAND ==>								SCROLL ==> PAGE			

Figure 11–19, Report Panel with *****END***** Displayed

3. Press the **Query** key to return to the SQL Query panel.

11.3.4 RESET Command: Clear a Query

If a query displays on your current panel and you wish to clear it before beginning to write a new query, use the RESET QUERY command. This command erases the SQL statement on the current panel and displays an empty area for the new query to be constructed.

1. Type **RESET QUERY** at the “Command” prompt.
2. Press **Enter**.

The query cleared from the panel cannot be recovered unless it was previously saved. To save a query, see Section 11.3.8, Saving a Query.

11.3.5 DRAW Command: Find Column Names

If you know the name of the table you want to work with but not all the column names, QMF can help by providing the column names for you. For example, suppose you want to know the names of the columns in the LOAN table:

1. Type **DRAW LOAN** at the “Command” prompt.
2. Press **Enter**.

The DRAW command must be issued from a SQL Query panel. The DRAW command constructs a basic SQL SELECT query, selecting all columns from the database table. If you were to run this query as it is, the entire LOAN table would be displayed. You may edit this query, if desired, by deleting column names or specifying select conditions. To clear the query from the panel:

1. Type **RESET QUERY**.
2. Press **Enter**.

The NSLDS tables and corresponding column names are listed in Section 10.2.

11.3.6 Selecting Specific Columns from a Table

Most often, you do not need to view all columns in a table from your query. For this example, we are constructing a query to select the following columns from LOAN table:

```
AMT
CURR_LEN_CODE
SCH_CODE
STU_NO
```

1. Type the following query on the SQL Query panel:

```
SELECT  AMT, CURR_LEN_CODE, SCH_CODE, STU_NO
FROM    LOAN
```

Since the NSLDS LOAN table returns over 65 million rows of data, you can run the query to get a feel for the process, but should cancel it.

Your SQL Query panel should resemble Figure 11–20.

```

SQL QUERY                                MODIFIED LINE 1

SELECT AMT, CURR_LEN_CODE, SCH_CODE, STU_NO
FROM LOAN

*** END ***

1=Help      2=Run      3=End      4=      5=Chart    6=Draw
7=Backward  8=Forward  9=Form    10=Insert 11=Delete 12=Report
OK, QUERY is displayed.
COMMAND ==>                                SCROLL ==> PAGE

```

Figure 11–20, SELECT Statement in SQL Query Panel

2. Press the **Run** key to process your query.

The report resulting from this query resembles the panel shown in Figure 11–21.

```

REPORT                                LINE 1 POS 1 79

      CURR
      LEN
      SCH
      STU
      AMT CODE CODE NO
-----
1250 899986 001526 37000002
2500 899986 001526 37000002
1338 899986 001526 37000002
2625 819188 026112 37000003
4000 899986 002199 37000004
2500 821868 009377 37000005
2625 888885 002199 37000006
7500 899986 002838 37000007
1703 819188 002838 37000007
987 819188 002838 37000007
2333 899986 003765 37000008
1699 899986 003765 37000008

1=Help      2=      3=End      4=Print    5=Chart    6=Query
7=Backward  8=Forward  9=Form    10=Left    11=Right   12=
OK, this is the REPORT from your RUN command.
COMMAND ==>                                SCROLL ==> PAGE

```

Figure 11–21, Report Panel Showing Results of Select Statement

Use the **BOTTOM** command to view the last rows in the report or **TOP** to return to the beginning of your report.

The **BOTTOM** command may take too long to process because of the size of the table. You should adjust this query for better results by using a **WHERE** statement to limit the rows selected.

11.3.7 Selecting on Conditions

Often you may want to view a limited number of rows in a table. If you want to view only the loans with School Code 001002, use the WHERE statement followed by a condition.

There are two main data types stored in QMF columns:

- **Character**—Can contain letters, numbers, or special characters (for example, SCH_CODE, CURR_FST).
- **Numeric**—Contains numbers only; usually used in calculations (for example, AMT, OUT_PRIN_BAL).

To select numeric data, type the number you are searching for. To select rows with character data in a column, enclose the character data you are searching for with single quotation marks. SCH_CODE = '001002', in this example, expresses the condition of equality. Use the name of a column, then = (equals), followed by the value you are searching for in the column.

1. Advance your cursor into the query area and modify the statement as follows:

```
SELECT  AMT, CURR_LEN_CODE, SCH_CODE, STU_NO
FROM    LOAN
WHERE   SCH_CODE = '001002'
```

As the examples progress, it uses additional columns from the LOAN table that were not displayed in Figure 11–2.

2. Press the **Run** key to produce the report in Figure 11–22.

REPORT				LINE 1	POS 1	79
AMT	CURR LEN CODE	SCH CODE	STU NO			
2500	831053	001002	37001503			
1800	831053	001002	37001503			
2500	899986	001002	122001636			
2500	899986	001002	122001636			
1200	899986	001002	122002066			
2000	803634	001002	122002066			
1500	899986	001002	122002157			
7040	800001	001002	171717171			
7040	800001	001002	181818181			
7040	800004	001002	200000309			
7040	800001	001002	200000310			
7040	800004	001002	200000311			
1=Help				2=	3=End	4=Print
7=Backward				8=Forward	9=Form	10=Left
OK, this is the REPORT from your RUN command.				5=Chart	6=Query	
COMMAND ==>				11=Right	12=	
				SCROLL ==> PAGE		

Figure 11–22, Sorted Report Panel

The example above displays all rows where the value in SCH_CODE equals 001002. If only one row satisfies the condition, you see only one row. If there are no rows in the table that satisfy the condition, you see a Report panel with column headings, but no rows of data are displayed.

11.3.8 Saving a Query

QMF allows you to save a query for later use. A copy of your query is not kept unless you save it. If a query is changed, the former query is lost unless you saved it.

Queries can be stored in the database with specific names. If you have created a query and want to save it for later, use the following procedure:

1. Type **SAVE QUERY ?** at the “Command” prompt.
2. Press **Enter**.
3. The Save Command Prompt panel displays (Figure 11–23).

SAVE Command Prompt

1 to 13 of 13

SAVE QUERY

AS

Name (_____) +

Enter the name the object will have in the database.

Confirm (YES_____) Display the confirmation panel before replacing

and object in the database? YES or NO.

Share (_____) Share this object? YES or NO. Leave this field

blank to keep the existing share value.

Comment (_____)

You can enter a comment to be saved with the object.

F1 = Help
F3=End
F4=List
F7=Backward
F8=Forward

Figure 11–23, Save Command Prompt Panel

The first blank is for the query name. This is the name that you use to recall the query.

4. Type your **queryname** on the blank line after the “Name” prompt.

11.3.8.1 Naming Conventions and Standards

Use the following rules when naming your query:

- Names can be up to 18 characters.

- Names may contain only letters of the alphabet, numbers, and the characters @, #, \$, and underscore (_).
- Names must begin with a letter, @, #, or \$.

The naming standard is **X_name**, where:

X = Type of Object:

Q—Query

F—Form

P—PROC

name = Purpose of the object.

The following are examples of query names that conform to this naming standard:

Q_DEFAULT_RATE_SUP

Q_CLOSED_SCHOOLS

Q_COR_LEN_BY_SCH

Later, when you program special forms to present the results of your query, giving the form the same name as the query helps you know which form is which. The same applies to procedures.

11.3.8.2 Options

As you save your query, QMF offers you the following options:

- **CONFIRM**—This option asks whether you want to be notified before an existing query is replaced by a new query with the same name. The default is YES. If the option is set to YES, a Confirmation panel displays before any query is replaced in the database. This allows you the opportunity to cancel the **SAVE** before accidentally replacing an existing query. If the option is set to NO, a Confirmation panel is not displayed. The existing query is automatically replaced by the new query with the same name.
- **SHARE**—You can save a query to share with other users by using the SHARE option after the SAVE command. The SHARE option controls QMF users' access to a query. This access is independent of whether or not those users have authority to access the data that the saved query retrieves. That is, users can be authorized to access a query, yet receive an error message when they run the query if they are not authorized to see the data. We recommend all queries be saved with SHARE = YES. Once a query has been saved with the SHARE option set to YES, other users may display the query by referring

to it by owner. Owner is the userid of whoever saved and shared the query. Queryname is the name the query was assigned when it was saved.

Type **YES** on the blank line beside the “Share” prompt.

- **COMMENT**—You can assign remarks to the query by typing text at the last prompt. This option allows you to document information concerning each query at save. Adding comments makes it easier to recognize the purpose and function of a query. To add a comment, follow these steps:

1. Type **EXAMPLE FOR QMF CLASS** at the “Comment” prompt.
2. Press **Enter**.

Notice a message verifying the query has been saved is displayed on the message line. You do not have to display the SQL Query panel to save your query. It can be saved from any panel with a “Command” prompt. You can type the command **SAVE QUERY AS queryname (SHARE=YES** or **(S=Y** from any Command prompt. This command does not display the SQL Query panel, but simply saves the query in the database with the name that you have assigned with the Share Option set to YES.

11.3.9 RUN Command

Once a query has been saved, you do not have to display the query on the SQL Query panel to run it. The RUN command allows you to run a saved query from the “Command” prompt on any QMF panel.

1. Press the **End** key to return to the QMF Home Panel.

To run a previously saved query:

1. Type **RUN** followed by your saved **queryname** at the “Command” prompt.
2. Press **Enter**.

This command runs the query selected and returns the results to a Report panel.

11.3.10 Adding Comments to a SQL Query

Comments are lines of text entered in your query that do not provide instructions to the database manager. Instead, they explain your query so that you or someone else using the query later may more easily understand it. Comments are entered from the SQL Query panel.

In SQL, two hyphens (--) mark everything that follows them, up to the end of the line, as a comment. With comments, your query might look like the screen in Figure 11–24.

```
-- THIS QUERY LISTS AMT, CURRENT LENDER CODE, SCHOOL CODE, STUDENT NUMBER

SELECT AMT, CURR_LEN_CODE, SCH_CODE, STU_NO      -- NAMES THE COLUMNS USED
FROM LOAN                                       -- THE TABLE
WHERE SCH_CODE = '001002'                      -- THE CONDITION TO MEET
ORDER BY CURR_LEN_CODE                          -- ALPHABETIC ORDER BY NAME
```

Figure 11–24, Query with Comments

11.3.11 Displaying the Names of Your Saved Queries

If you want to view a list of queries you have saved, use the following procedure:

1. Type **LIST QUERIES** at the “Command” prompt.
2. Press **Enter**.

The Query List panel displays over whatever was on your current panel before you entered the LIST command. Figure 11–25 shows how a query named SC001002_Q has been saved by QMFUSER. If QMFUSER had saved other queries, they would also be listed here.

Query List			
Action	Name	Owner	
	SC001002_Q	QMFUSER	1 to 1 of 1

F1=Help	F4=Command	F5=Describe	F6=Refresh
F9=Clear	F10=Comments	F11=Sort	F12=Cancel

OK, your database object list is displayed.			

Figure 11–25, Query List Panel

3. Press the **Cancel** key to return to the previous panel.

From Query List panel, you may enter a command in the ACTION column. Commands entered here include RUN, DISPLAY, and ERASE.

11.3.12 Erasing a Query

QMF lets you erase any query you have saved in the database. For example, to erase the query SC001002_Q, use the following procedure:

1. Type **ERASE SC001002_Q** at the “Command” prompt.

An erase confirmation message is displayed. This allows you to cancel the **ERASE** before it actually processes.

2. Press **Enter** to erase the query, or type **2** to cancel.

Be careful when using the ERASE command, because once a query has been erased, it cannot be retrieved.

You can erase the query when using the LIST QUERIES command by typing ERASE in the ACTION column beside the query you want to erase.

11.3.13 Retrieving and Displaying a Saved Query

Sometimes you may need to retrieve a saved query from the database for viewing. Suppose you wanted to view the query BASIC_Q previously saved and shared by your UserID. To display that saved query, BASIC_Q, from the database, use the following procedure:

1. Type **DISPLAY BASIC_Q** at the “Command” prompt.

2. Press **Enter**.

1. The saved query is displayed (Figure 11–26).

SQL QUERY	MODIFIED	LINE	1
SELECT CURR_MAT_DT,CURR_LOAN_STAT,AMT,OUT_PRIN_BAL,OUT_PRIN_BAL_DT, OUT_INT_BAL, OUT_INT_BAL_DT,CURR_GA_CODE,CURR_LEN_CODE,SCH_CODE,STU_NO FROM LOAN			
*** END ***			
1=Help	2=Run	3=End	4=
7=Backward	8=Forward	9=Form	10=Insert
OK,	.BASIC_Q is displayed.		5=Chart
COMMAND ==>			6=Draw
			11=Delete
			12=Report
			SCROLL ==> PAGE

Figure 11–26, SQL Query Panel Showing a Saved Query

Any query you were working on is automatically erased from the SQL Query panel and replaced with the retrieved, saved query. To avoid losing your work, make sure you save any query you are working on before using the DISPLAY command. When your saved query is displayed, you are free to modify or run it.

11.3.14 Selecting on Inequalities

So far, our examples have used only equal (=) comparisons when specifying conditions for retrieving rows; for example, WHERE CURR_LEN_CODE = '899986'. SQL queries use several other comparison operators. They are discussed below.

The WHERE statement must always be followed by a column name. The column name must be followed by either an equals sign (=) or one of the following comparison operators:

>	greater than
<	less than
<>	not equal to (less than combined with greater than)
>=	greater than or equal to
<=	less than or equal to

Other WHERE statements are shown in a table in Section 11.4.7.

Comparison operators in an SQL statement are always followed by a value. For example, if the following query were run, all loans with an amount of more than \$1,000 would be selected for the report. Any loan with an amount equal to \$1,000 would not be displayed on the report.

```
SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
        OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
        OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
        SCH_CODE, STU_NO
FROM    LOAN
WHERE   AMT > 1000
```

This query produces the report shown in Figure 11–27.

REPORT			LINE 1		POS 1	79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL	OUT INT BAL DT
-----	-----	-----	-----	-----	-----	-----
1987-09-01	PF	1250	0	0001-01-01	0	0001-01-
1987-09-01	PF	2500	0	0001-01-01	0	0001-01-
1987-09-01	PF	1338	0	0001-01-01	0	0001-01-
1992-08-01	CA	2625	0	0001-01-01	0	0001-01-
1988-04-01	DU	4000	0	0001-01-01	0	0001-01-
1981-11-01	DC	2500	0	0001-01-01	0	0001-01-
1993-11-28	RP	2625	0	0001-01-01	0	0001-01-
1991-12-01	RP	7500	0	0001-01-01	0	0001-01-
1995-11-13	ID	1703	0	0001-01-01	0	0001-01-
1992-11-01	RP	2333	0	0001-01-01	0	0001-01-
1992-11-01	RP	1699	0	0001-01-01	0	0001-01-
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, this is the REPORT from your RUN command.						
COMMAND ==>			SCROLL ==> PAGE			

Figure 11-27, Report Panel Listing Amounts Over 1000

11.3.15 Selecting a Range

When you want to select a range of data, use the BETWEEN comparison operator. The BETWEEN command selects all data equal to or between the two terminal values you choose. For example, if you ran the following query:

```

SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
        OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
        OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
        SCH_CODE, STU_NO
FROM    LOAN
WHERE   AMT BETWEEN 1000 and 2000

```

All loans in the LOAN table with an amount of \$1,000 or \$2,000 or any amount in between would be selected for the resulting report.

Amount is a numeric column so you do not need to enclose the numbers in single quotes. Numeric columns cannot contain dollar signs (\$) or commas, so do not include this character in your WHERE statement.

Press the **Run** key. The report shown in Figure 11-28 displays.

REPORT			LINE 1		POS 1	79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL	OUT INT BAL DT
1987-09-01	PF	1250	0	0001-01-01	0	0001-01-
1987-09-01	PF	1338	0	0001-01-01	0	0001-01-
1995-11-13	ID	1703	0	0001-01-01	0	0001-01-
1992-11-01	RP	1699	0	0001-01-01	0	0001-01-
1992-11-01	RP	1699	0	0001-01-01	0	0001-01-
1992-11-01	RP	1769	0	0001-01-01	0	0001-01-
1988-12-01	PF	1000	0	0001-01-01	0	0001-01-
1996-11-30	ID	2000	0	0001-01-01	0	0001-01-
1984-11-15	PF	2000	0	0001-01-01	0	0001-01-
1984-02-15	PF	2000	0	0001-01-01	0	0001-01-
1984-02-15	PF	2000	0	0001-01-01	0	0001-01-
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, this is the REPORT from your RUN command.						
COMMAND ==>			SCROLL ==> PAGE			

Figure 11–28, Report Panel Listing Amounts Between 1000 and 2000

11.3.16 Selecting on Multiple Conditions

Multiple conditions are connected by AND or OR.

11.3.16.1 AND Condition

Assume we have two different conditions:

AMT BETWEEN 1000 AND 2000
CURR_LEN_CODE = '899986'

When you want to select rows that meet both conditions, use the AND condition to select only the rows that meet both conditions. For example, if the following query were run:

```
SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
        OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
        OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
        SCH_CODE, STU_NO
FROM    LOAN
WHERE   AMT BETWEEN 1000 and 2000
AND     CURR_LEN_CODE = '899986'
```

The query would select all loans in the LOAN table with both an amount between \$1,000 and \$2,000 and also a Lender Code of 899986.

Press the **Run** key. The report in Figure 11–29 displays.

REPORT			LINE 1	POS 1	79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL DT
1987-09-01	PF	1250	0	0001-01-01	0 0001-01-
1987-09-01	PF	1338	0	0001-01-01	0 0001-01-
1992-11-01	RP	1699	0	0001-01-01	0 0001-01-
1992-11-01	RP	1699	0	0001-01-01	0 0001-01-
1993-05-01	RP	1575	0	0001-01-01	0 0001-01-
1990-05-01	RP	1850	0	0001-01-01	0 0001-01-
1990-07-01	RP	1572	0	0001-01-01	0 0001-01-
1984-02-15	PF	1764	0	0001-01-01	0 0001-01-
1984-02-15	PF	1550	0	0001-01-01	0 0001-01-
1984-02-15	PF	2000	0	0001-01-01	0 0001-01-
1993-02-01	PF	1813	0	0001-01-01	0 0001-01-
1=Help	2=	3=End	4=Print	5=Chart	6=Query
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=
OK, this is the REPORT from your RUN command.					
COMMAND ==>			SCROLL ==> PAGE		

Figure 11-29, Report Panel

Remember to use the RIGHT and LEFT function keys to scroll to the right and left as demonstrated in Figure 11-30.

REPORT				LINE 1	POS 38	116					
OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL	OUT INT BAL DT	CURR GA CODE	CURR LEN CODE	SCH CODE	STU NO				
0	0001-01-01	0	0001-01-01	748	899986	001526	37000002				
0	0001-01-01	0	0001-01-01	748	899986	001526	37000002				
0	0001-01-01	0	0001-01-01	748	899986	003765	37000008				
0	0001-01-01	0	0001-01-01	748	899986	003765	37000008				
0	0001-01-01	0	0001-01-01	748	899986	002708	37000043				
0	0001-01-01	0	0001-01-01	748	899986	002708	37000043				
0	0001-01-01	0	0001-01-01	748	899986	003946	37000114				
0	0001-01-01	0	0001-01-01	748	899986	003290	37000180				
0	0001-01-01	0	0001-01-01	748	899986	003290	37000180				
0	0001-01-01	0	0001-01-01	748	899986	003290	37000180				
0	0001-01-01	0	0001-01-01	748	899986	023241	37000207				
1=Help		2=		3=End		4=Print		5=Chart		6=Query	
7=Backward		8=Forward		9=Form		10=Left		11=Right		12=	
OK, RIGHT performed. Please proceed.											
COMMAND ==>						SCROLL ==> PAGE					

Figure 11-30, Report Panel Listing Current Lender Code of 899986

Notice that in Figure 11-30 the only Lender Code displayed is 899986. Sometimes, it is possible to use an AND condition instead of BETWEEN. For example, WHERE AMT >= 1000 AND AMT <= 2000 would achieve the same result as WHERE AMT BETWEEN 1000 AND 2000.

11.3.16.2 OR Condition

Assume we have the same two conditions used with the AND condition. This time, rather than selecting only the records meeting both conditions (AND), you want to select all records meeting either or both conditions. If you want to select rows that meet either or both conditions, use the OR condition to connect them. For example, if the following query were run:

```
SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
        OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
        OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
        SCH_CODE, STU_NO
FROM    LOAN
WHERE   AMT BETWEEN 1000 and 2000
        OR  CURR_LEN_CODE = '899986'
```

The query would select the same columns as the one using the AND condition, but would include only those with either an amount between \$1,000 and \$2,000 or a Lender Code of 899986. The report shown in Figure 11–31 displays.

REPORT			LINE 1		POS 1	79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL	OUT INT BAL DT
1987-09-01	PF	1250	0	0001-01-01	0	0001-01-
1987-09-01	PF	2500	0	0001-01-01	0	0001-01-
1987-09-01	PF	1338	0	0001-01-01	0	0001-01-
1988-04-01	DU	4000	0	0001-01-01	0	0001-01-
1991-12-01	RP	7500	0	0001-01-01	0	0001-01-
1995-11-13	ID	1703	0	0001-01-01	0	0001-01-
1992-11-01	RP	2333	0	0001-01-01	0	0001-01-
1992-11-01	RP	1699	0	0001-01-01	0	0001-01-
1992-11-01	RP	1699	0	0001-01-01	0	0001-01-
1992-11-01	RP	2625	0	0001-01-01	0	0001-01-
1992-11-01	RP	1769	0	0001-01-01	0	0001-01-
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, this is the REPORT from your RUN command.						
COMMAND ==>						SCROLL ==> PAGE

Figure 11–31, Report Panel Displaying Results of the OR Condition

All loans for Lender Code of 899986 are selected regardless of their amount. All loans that have an amount between \$1,000 and \$2,000 are selected regardless of the Lender Code.

Press the **Right** key to display the CUR LEN CODE column.

Multiple OR conditions can be used in the WHERE statement:

```
WHERE CURR_LEN_CODE = '899986' OR CURR_LEN_CODE = '800241'
```

This WHERE statement selects all loans for either Lender code 899986 or 800241.

11.3.16.3 IN Condition

When searching for an equal condition in one column, it is sometimes easier to use the IN condition instead of multiple OR conditions in your query. For example, instead of:

```
SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
        OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
        OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
        SCH_CODE, STU_NO
FROM    LOAN
WHERE   CURR_LEN_CODE = '899986' OR CURR_LEN_CODE =
'800241'
```

Use the following query:

```
SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
        OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
        OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
        SCH_CODE, STU_NO
FROM    LOAN
WHERE   CURR_LEN_CODE IN ('899986', '800241')
```

1. Press the **Run** key to produce the report.
2. Press the **Right** key to display SCH CODE column (Figure 11–32).

REPORT		LINE 1		POS 38		116	
OUT	OUT	OUT	OUT	CURR	CURR		
PRIN	PRIN	INT	INT	GA	LEN	SCH	STU
BAL	BAL	BAL	BAL	CODE	CODE	CODE	NO
DT	DT	DT	DT				
0	0001-01-01	0	0001-01-01	748	899986	001526	37000002
0	0001-01-01	0	0001-01-01	748	899986	001526	37000002
0	0001-01-01	0	0001-01-01	748	899986	001526	37000002
0	0001-01-01	0	0001-01-01	748	899986	002199	37000004
0	0001-01-01	0	0001-01-01	748	899986	002838	37000007
0	0001-01-01	0	0001-01-01	748	899986	003765	37000008
0	0001-01-01	0	0001-01-01	748	899986	003765	37000008
0	0001-01-01	0	0001-01-01	748	899986	003765	37000008
0	0001-01-01	0	0001-01-01	748	899986	003765	37000008
0	0001-01-01	0	0001-01-01	748	899986	002083	37000009
0	0001-01-01	0	0001-01-01	748	899986	002218	37000010
1=Help		2=		3=End		4=Print	
7=Backward		8=Forward		9=Form		10=Left	
5=Chart				11=Right		6=Query	
12=							
OK, RIGHT performed. Please proceed.							
COMMAND ==>				SCROLL ==> PAGE			

Figure 11–32, Report Panel Listing Results of the IN Condition

All loans for lender 899986 and 800241 are selected for the report. When the IN condition is used, values are specified in parentheses. One or more values can be specified; for example, the query `WHERE CURR_LEN_CODE IN ('899986')` only selects lender 899986 loans.

Remember, if you are selecting from a character type column, each condition you are searching for must be enclosed in single quotes.

11.3.17 Putting the Rows in Order

To arrange your output by specific columns, use the ORDER BY statement followed by the names of the columns that control the order. Enter the most significant column name first. If the ORDER BY statement is excluded from the query, the data is displayed in the order in which it was retrieved from DB2.

The rows of the report automatically are displayed in ascending order in the column name specified in the ORDER BY statement. Ascending order is the default. If you want the rows displayed in descending order:

1. Type **ORDER BY COLUMN_NAME DESC**.

An example of ascending order is “A, B, C, D” or “0, 1, 2, 3”, and descending order “3, 2, 1, 0” or “D, C, B, A”. If both letters and numbers are sorted within a column, letters precede numbers when sorted in ascending order, and follow numbers when sorted in descending order. For example, consider the following query:

```
SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT, OUT_PRIN_BAL,
        OUT_PRIN_BAL_DT, OUT_INT_BAL, OUT_INT_BAL_DT,
        CURR_LEN_CODE, SCH_CODE, STU_NO
FROM    LOAN
WHERE   CURR_LEN_CODE IN ('899986', '800241')
ORDER BY SCH_CODE
```

2. Press the **Run** key to produce the report (Figure 11–33).
3. Press the **Right** key to scroll to display the SCH CODE column.

REPORT			LINE 1		POS 1	79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL	OUT INT BAL DT
1988-07-01	RP	2500	0	0001-01-01	0	0001-01-
1990-12-01	RP	1200	0	0001-01-01	0	0001-01-
1988-07-01	RP	2500	0	0001-01-01	0	0001-01-
1989-11-01	PF	1500	0	0001-01-01	0	0001-01-
1987-12-01	PF	2500	0	0001-01-01	0	0001-01-
1988-01-01	PF	2500	0	0001-01-01	0	0001-01-
1988-06-01	PF	2500	0	0001-01-01	0	0001-01-
1990-11-01	PF	2500	0	0001-01-01	0	0001-01-
1990-11-01	PF	1464	0	0001-01-01	0	0001-01-
1992-11-01	RP	1479	0	0001-01-01	0	0001-01-
1992-11-01	RP	1147	0	0001-01-01	0	0001-01-
1=Help 2= 3=End 4=Print 5=Chart 6=Query 7=Backward 8=Forward 9=Form 10=Left 11=Right 12= OK, this is the REPORT from your RUN command. COMMAND ==>						
					SCROLL ==> PAGE	

Figure 11–33, Report Panel Listing School Codes in Ascending Order

This query would select all loans with Current Lender 899986 or 800241. Notice that the loans are displayed in ascending order by School Code. Ascending or descending was not specified in the ORDER BY statement, so the default, ascending, was assumed.

Suppose you want the highest School Code to display at the top of the report. To arrange this, you must specify the order as descending (DESC). For example, if the following query were run:

```
SELECT    CURR_MAT_DT, CURR_LOAN_STAT, AMT, OUT_PRIN_BAL,
          OUT_PRIN_BAL_DT, OUT_INT_BAL, OUT_INT_BAL_DT,
          CURR_LEN_CODE, SCH_CODE, STU_NO
FROM      LOAN
WHERE     CURR_LEN_CODE IN ('899986', '800241')
ORDER BY  SCH_CODE DESC
```

The same loans would be displayed as in the previous query, except in descending order.

To change the query so each School Code is displayed in ascending order within each Lender code, change the query as follows:

```
SELECT    CURR_MAT_DT, CURR_LOAN_STAT, AMT,
          OUT_PRIN_BAL, OUT_PRIN_BAL_DT, OUT_INT_BAL,
          OUT_INT_BAL_DT, CURR_GA_CODE, CURR_LEN_CODE,
          SCH_CODE, STU_NO
FROM      LOAN
WHERE     CURR_LEN_CODE IN ('899986', '800241')
ORDER BY  CURR_LEN_CODE, SCH_CODE
```

1. Press the **Run** key to produce the report.
2. Press the **Right** key to display the CURR LEN and SCH CODE columns (Figure 11–34).

REPORT				LINE 1		POS 38	116
OUT PRIN BAL	OUT PRIN BAL DT	OUT INT BAL	OUT INT BAL DT	CURR GA CODE	CURR LEN CODE	SCH CODE	STU NO
0	0001-01-01	0	0001-01-01	725	800241	001610	547009751
0	0001-01-01	0	0001-01-01	725	800241	001610	547009986
0	0001-01-01	0	0001-01-01	718	800241	020988	207003783
0	0001-01-01	0	0001-01-01	740	899986	001002	122001636
0	0001-01-01	0	0001-01-01	741	899986	001002	122002066
0	0001-01-01	0	0001-01-01	741	899986	001002	122002157
0	0001-01-01	0	0001-01-01	740	899986	001002	122001636
0	0001-01-01	0	0001-01-01	748	899986	001005	37000481
0	0001-01-01	0	0001-01-01	748	899986	001005	37000483
0	0001-01-01	0	0001-01-01	748	899986	001005	37000503
0	0001-01-01	0	0001-01-01	741	899986	001005	122002040
1=Help		3=End		5=Chart		6=Query	
7=Backward		8=Forward		11=Right		12=	
OK, RIGHT performed. Please proceed.							
COMMAND ==>							
						SCROLL ==>	PAGE

Figure 11-34, Report Panel Listing Results of Order by Statement

In this example, loans are displayed in ascending order first by CURR_LEN_CODE, and then by SCH_CODE within each lender grouping. The first column that follows the ORDER BY statement is used as the primary sort column for all rows retrieved. The second and succeeding columns are used to sort to finer levels of detail.

11.4 Prompted Query

Prompted Query provides an easy way to create and run a query. It helps you access and select information from a database. Prompted Query is especially useful for the beginner or occasional QMF user because it prompts you step-by-step while building a query. Therefore, while you do not need to have detailed knowledge of a query language, you do need to know which tables contain the data you want in order to build an effective query.

11.4.1 Getting Started with Prompted Query

To use Prompted Query, first set the language option in your profile to Prompted as described in Section 11.4.1.2. When you have accessed QMF, the QMF Home Panel displays (Figure 11–35).

```

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-----

QMF HOME PANEL
Version 3 Release 1.1

Query
Management
Facility

*****      **      **      *****
**      **      ***      ***      **
**      **      ****      ****      *****
**      **      ** ** ** ** ** ** ** ** ** ** **
**      * **      **      ****      ** **
*****      **      **      ** **
*

-----

Type command on command line or use PF keys. For help, press PF1 or type HELP.

1=Help      2=List      3=End      4=Show      5=Chart      6=Query
7=Retrieve   8=Edit Table  9=Form     10=Proc     11=Profile   12=Report
OK, you may enter a command.
COMMAND ==>

```

Figure 11–35, QMF Home Panel

11.4.1.1 Using the SHOW Command

Use the SHOW command to move among the different panels that QMF uses in building a query and formatting the results of that query. These panels are known as object panels. To access the Show Command Prompt panel, use the following procedure:

1. Type **SHOW** at the “Command” prompt.
2. Press **Enter**.

The Show Command Prompt panel displays (Figure 11–36). This panel lists object panels that can be accessed using the SHOW command.

```

+-----+
|                                     |
|               SHOW Command Prompt |
|                                     |
| Enter the name or number of the panel to show. (           ) |
|                                     | 1 to 13 of 17 |
| 1. PROFile           Current user profile |
| 2. PROC              Current procedure   |
| 3. Query             Current query       |
| 4. Report            Current report      |
| 5. CHARt             Default chart       |
| 6. Globals           Global variable list |
| 7. Form              Current form        |
| 8. Form.Main         Basic report formatting |
| 9. Form.COLumns      Column attributes   |
| 10. Form.CONditions  User-defined conditions |
| 11. Form.CAlc        User-defined calculations |
| 12. Form.Page        Page heading and footing text |
| 13. Form.Detail      Detail text         |
|                                     |
+-----+
| F1=Help F3=End F7=Backward F8=Forward |
+-----+
| Please follow the directions on the command prompt panel. |
+-----+

```

Figure 11–36, Show Command Prompt Panel

3. Type **PROFILE** or **1**, the name or number of the desired panel.
4. Press **Enter**.

You can also display the user profile by pressing the **Profile** key from the QMF Home Panel or by typing the command **DISPLAY PROFILE** or shortcut **DI PROFILE** on the command line from any QMF panel.

11.4.1.2 Setting the Profile Values

After selecting the PROFILE option from the SHOW Command Prompt panel, you should see your profile data (Figure 11–37). It describes your interactive environment with QMF and is kept in the database by QMF. Your profile tells QMF what choices to make when presenting information for viewing or printing. For an online explanation of Profile options, press the **Help** key.

```
PROFILE

General Operands:
CASE    ==> UPPER      Enter UPPER, STRING, or MIXED.
DECIMAL ==> PERIOD     Enter PERIOD, COMMA, or FRENCH.
CONFIRM ==> YES        Enter YES or NO.
LANGUAGE ==> PROMPTED Enter SQL, QBE, or PROMPTED.
MODEL   ==> REL        Enter REL or ER.

Defaults for printing:
WIDTH   ==> 132        Number of characters per line.
LENGTH ==> 60          Number of lines per page.
PRINTER ==>            Printer to be used for output.

QMF Administration Operands: (Not usually changed)
SPACE   ==> "DSQTSDEF"
Enter the name of SQL/DS DBSPACE in which tables will
be saved by the SAVE DATA command.
TRACE   ==> NONE
Enter ALL, NONE or a character string of function-id,
trace-level pairs.
1=Help      2=Save      3=End      4=Print      5=Chart      6=Query
7=          8=          9=Form     10=          11=          12=Report
OK, PROFILE is shown.
COMMAND ==>
```

Figure 11–37, QMF Profile

- **CASE ==> UPPER**

QMF recognizes commands only in uppercase characters. When CASE==>UPPER is set, QMF changes data entered in lowercase to uppercase.

- **DECIMAL ==> PERIOD**

A period (.) is the most common decimal point indicator. Other indicators are available, one example being a comma.

- **CONFIRM ==> YES**

When YES is selected, QMF displays a confirmation panel before a command changes or replaces an object in the database. We recommend this option be set to YES to prevent accidentally overwriting something.

- **LANGUAGE ==> SQL**

QMF provides three ways to write queries:

- Structured Query Language (SQL)
- Prompted Query (Prompted)
- Query-by-Example (QBE)

Prompted Query builds a retrieval query by prompting you for information about the data that you want. SQL and QBE are languages for writing queries.

The choice specified in the profile determines whether an SQL, QBE, or Prompted Query panel displays when you create or display a query. To create queries using the Prompted Query panel, follow these steps:

1. Press **Tab** to advance the cursor to the LANGUAGE option.
 2. Type **PROMPTED**.
 3. Press **Enter**.
- **MODEL ==> REL**
QMF can work with two types of data: relational (REL) and entity-relationship (ER) data. NSLDS uses relational data stored in DB2. This option should never be changed.

The options PRINTER, SPACE, and TRACE should never be changed without first checking with the Customer Service Center.

11.4.1.3 Saving Your Profile

The changes you made to your profile remain in effect only until you end your QMF session, unless you save the changed profile.

To save your changed profile:

1. Press the **Save** key (PF2).
2. Press the **End** key (PF3) to return to the QMF Home Panel.

The profile you saved is stored in the database. It is in effect when you next log on to QMF. If you want the changes to take effect immediately, end your QMF session and start a new one.

11.4.2 Creating a Prompted Query

A prompted query (Figure 11–38) provides menus that prompt you to create queries. To create queries, you must know the tables you want data from, the names of columns within the table, row conditions, and the sequence in which you want to display the rows. In other words, the same information you needed for an SQL query.

The dialog panels of Prompted Query guide you through listing tables, getting information about the tables, selecting tables and columns, and building row conditions without your having to know the syntax of an SQL query.

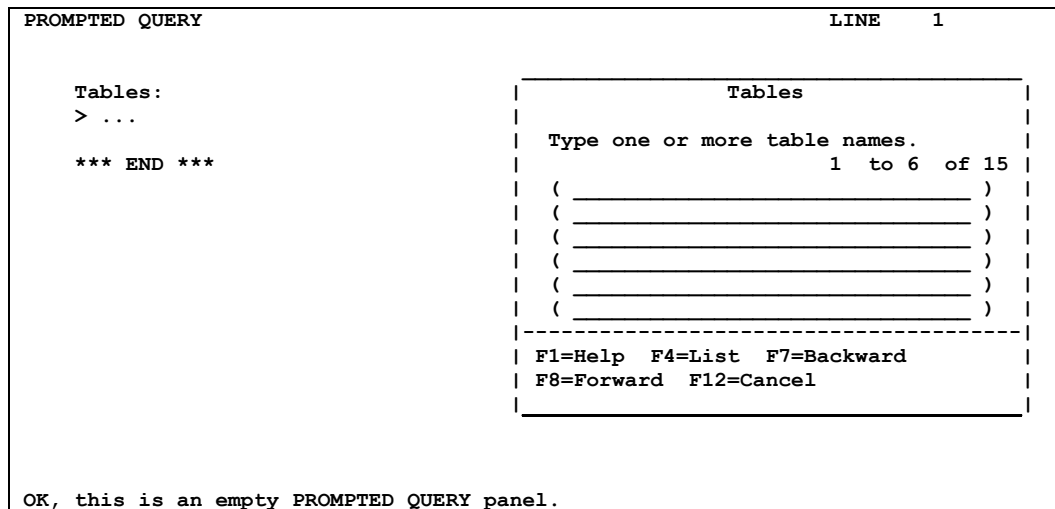


Figure 11–38, Prompted Query Panel

The prompted panels are displayed on the right-hand side of the screen. As you build each part of the query in the dialog panels, the query itself is displayed in the echo area, on the left-hand side of the screen.

To return to an empty Prompted Query panel at any time:

1. Type **RESET QUERY** at the “Command” prompt.
2. Press **Enter**.

11.4.3 List the Available Tables

You can view a list of all the tables you are authorized to use (Figure 11–40) by pressing the **List** key from the Tables dialog panel.

When you use the **List** key, you can specify search information for your list on the Tables dialog panel. This makes the list smaller and easier to use. In addition, if you add search information to filter your list, the smaller list runs faster than a listing of all tables. There are several ways you can limit your list.

Assume you are looking for a table containing a name beginning with “LO”. To obtain this limited list, type **LO** (or **lo**) and the percent sign (%) as shown in Figure 11–39. The percent sign is a selection symbol that stands for any number of characters; it is useful when you only know part of a name and do not know the exact letters in the desired name.

PROMPTED QUERY	LINE 1																						
Tables: > ... *** END ***	<table border="1"> <thead> <tr> <th colspan="2">Tables</th> </tr> </thead> <tbody> <tr> <td>Type one or more table names.</td> <td>1 to 6 of 15</td> </tr> <tr> <td>(lo% </td> <td>)</td> </tr> <tr> <td>(</td> <td>)</td> </tr> <tr> <td>(</td> <td>)</td> </tr> <tr> <td>(</td> <td>)</td> </tr> <tr> <td>(</td> <td>)</td> </tr> <tr> <td>(</td> <td>)</td> </tr> <tr> <td colspan="2">-----</td> </tr> <tr> <td>F1=Help F4=List F7=Backward</td> <td></td> </tr> <tr> <td>F8=Forward F12=Cancel</td> <td></td> </tr> </tbody> </table>	Tables		Type one or more table names.	1 to 6 of 15	(lo%)	()	()	()	()	()	-----		F1=Help F4=List F7=Backward		F8=Forward F12=Cancel	
Tables																							
Type one or more table names.	1 to 6 of 15																						
(lo%)																						
()																						
()																						
()																						
()																						
()																						

F1=Help F4=List F7=Backward																							
F8=Forward F12=Cancel																							

Figure 11–39, Search Criteria Entered on the Prompted Query Panel

1. Type **lo%**, the search criteria, in the entry area of the Tables dialog panel.
2. Press the **List** key.

This displays the Table List panel (Figure 11–40) with the names of all the tables beginning with “LO”.

Table List	
Name	Owner
	1 to 10 of 57
LOAN	
LOAN_CAN	
LOAN_DFR	
LOAN_DIS	
LOAN_GP	
LOAN_GUA	
LOAN_MAT_DT_HIS	
LOAN_RFD	
LOAN_RPMT_PLAN	
LOAN_STAT	

F1=Help F5=Describe F7=Backward F8=Forward	
F10=Comments F11=Sort F12=Cancel	

Figure 11–40, Table List Panel

11.4.4 Getting Information About the Tables

You sometimes need more information about tables before making your selection. To view a short comment line for each of the tables on the list, use the **Comments** key. This causes the Table List panel to expand and display remarks about each table (Figure 11–41).

Table List			
Name	Owner	Comments	1 to 10 of 57
LOAN			
LOAN_CAN			
LOAN_DFR			
LOAN_DIS			
LOAN_GP			
LOAN_GUA			
LOAN_MAT_DT_HIS			
LOAN_RFD			
LOAN_RPMT_PLAN			
LOAN_STAT			
F1=Help F5=Describe F7=Backward F8=Forward F10=Comments F11=Sort			
F12=Cancel			

Figure 11–41, Table List Panel with Comments

If any of the comment lines end with a continuation symbol (>), it means the comment is longer than can be displayed with the **Comments** function. To see the rest of the comment and other information for a specific table:

1. Press the **Tab** key to advance the cursor to the desired table for the specific description.
2. Press the **Describe** key.

A Description panel for the LOAN table displays (Figure 11–42).

Table List	
Table Description	
Name :	LOAN
Owner :	
Label :	
Subtype . . . :	Table
Comments . . . :	
F1=Help F12=Cancel	

Figure 11–42, Description Panel for LOAN Table

The Description panel provides the following information for a specified table:

Name	The name of the table
Owner	The userid of the owner of the table (if applicable)
Label	The label (if assigned) by which the table is known in a report
Subtype	The subtype of the table: Table, View, or Alias (DB2 only)
Comments	Descriptive comments about the table

If you are working on a table you own (one that you created), this Table Description Panel supplies only the name of the table and not the owner.

11.4.5 Selecting the Tables

To leave the Description panel and return to the Table List panel:

1. Press the **Cancel** key.

Notice that the table names in the list of tables are not numbered. The Table List is a multiple selection list. To select the tables for your query, type a character in front of the desired tables. You can select up to 15 tables for your query. For example, to select the LOAN table:

2. Type an **X** to the left of desired LOAN.
3. Press **Enter**.

The Tables Dialog panel displays (Figure 11–43) with LOAN selected.

PROMPTED QUERY	MODIFIED	LINE	1
Tables:			
> ...			
*** END ***			

Tables

Type one or more table names.

1 to 6 of 15

(LOAN_)

()

()

()

()

()

F1=Help F4=List F7=Backward
F8=Forward F12=Cancel

Figure 11–43, Tables Dialog List with the Selected Table

4. Press **Enter** again.

LOAN appears in the echo area and the Specify dialog panel displays (Figure 11–44).

PROMPTED QUERY	MODIFIED LINE 1
Tables: LOAN	Specify
Columns: ALL	Select an item.
*** END ***	2 1. Tables... 2. Columns... 3. Row Conditions... 4. Sort... 5. Duplicate Rows...
	F1=Help F12=Cancel
OK, ENTER performed. Please proceed.	

Figure 11–44, Selected Table in Echo Area with Specify Dialog List

11.4.6 Select Columns

Once you have selected a table, you can select the columns from that table that you want displayed in your report. Because Prompted Query has already chosen option 2, COLUMNS, you do not have to specify an item number in the Specify dialog panel.

1. Press **Enter**.

If the table chosen is the previous example of LOAN, when you press **Enter** the Columns Dialog panel displays (Figure 11–45).

Columns
Select one or more columns. You can also select either an expression or function.
LOAN -- all 1 to 8 of 43
NO
DT
FFEL DUP ID
PER_BEG_DT
PER_END_DT
CURR_MAT_DT
ACAD_LVL
1. Expression (A+B, etc.)...
2. Summary Functions (SUM, etc.)...
F1=Help F5=Describe F7=Backward
F8=Forward F12=Cancel

Figure 11–45, Columns Dialog Panel

You sometimes need more information about the columns before you can select one or more of them for your query. QMF helps you by providing descriptive information on a specific column. To get information on the Academic Level column shown in Figure 11–45:

2. Press the **Tab** key to move the cursor to the Academic Level, ACAD_LVL column.

3. Press the **Describe** key.
4. The Column Description panel displays (Figure 11–46).

Column Description	
Name . . . :	ACAD_LVL
Data Type. :	Character (1)
Label . . . :	
Remarks . . :	
Table . . . :	LOAN
F1=Help F12=Cancel	

Figure 11–46, Column Description Panel

The Column Description panel provides the following information on the specified column:

Name	The name of the column
Data Type	The form in which the data is displayed (character, integer, decimal)
Label	The label that has been assigned to the column (if one exists)
Remarks	Descriptive remarks about the column
Table	The name of the table containing the column, including owner

5. To leave the Column Description panel and return to the Columns panel, press the **Cancel** key.

To select the columns that you want in your results, type any character (for example, **X**) in front of the options desired. For example, to select the CURR_MAT_DT, CURR_LOAN_STAT, AMT, OUT_PRIN_BAL, CURR_LEN_CODE, SCH_CODE, and STU_NO columns, shown in Figure 11–45:

6. Press the **Tab** key to advance your cursor to the CURR_MAT_DT option.
7. Type an **X** in front of CURR_MAT_DT. After you type the character, the cursor advances to the next column name.
8. Press the **Forward** key to display additional columns.
9. Type an **X** in front of each of the other column names, using the **Tab** key to move from column to column.
10. Press **Enter** after you have selected all desired columns.

The columns you selected are displayed in the echo area on the Prompted Query panel (Figure 11–47) with the number 3 displayed in the Specify dialog panel.

PROMPTED QUERY	MODIFIED LINE 1
Tables: LOAN	+-----+ Specify Select an item. 3 1. Tables... 2. Columns... 3. Row Conditions... 4. Sort... 5. Duplicate Rows... +-----+ F1=Help F12=Cancel +-----+
Columns: CURR_MAT_DT CURR_LOAN_STAT AMT OUT_PRIN_BAL CURR_LEN_CODE SCH_CODE STU_NO *** END ***	
OK, ENTER performed. Please proceed.	

Figure 11–47, Columns in Echo Area with Specify Dialog Panel

11.4.7 Build a Row Condition

Once you have selected the columns from the desired table, you can limit which rows are shown. For example, if you want to show only those rows for the LOAN table, where the Lender Code is 899986, you can build a row condition, using a series of dialog panels.

Continuing with the example in Figure 11–47, Prompted Query has already chosen Option 3, ROW CONDITIONS, in the Specify dialog panel, so you do not have to specify an item.

To display the Row Conditions dialog panel:

1. Press **Enter**.
2. The Row Conditions dialog panel displays (Figure 11–48).

```

+-----+
|                                     |
|               Row Conditions        |
|                                     |
| Begin a condition by selecting one column, |
| or by entering an expression or function. |
|                                     |
|                                     | 1 to 9 of 43 |
|      LOAN                          |
| 2.   NO                            |
| 3.   DT                            |
| 4.   FFEL DUP ID                    |
| 5.   PER BEG DT                     |
| 6.   PER END DT                     |
| 7.   CURR MAT DT                    |
| 8.   ACAD LVL                       |
| 9.   CURR LOAN STAT                 |
|                                     |
| Expression (A+B, etc.)...           |
|                                     |
| F1=Help  F5=Describe  F7=Backward  |
| F8=Forward F12=Cancel                |
|                                     |
+-----+

```

Figure 11–48, Row Conditions Dialog Box

The first step in building a row condition is to select the column as the subject of your row condition. When selecting columns for row conditions, you are not limited to those columns you chose to display in your report. All columns in the table are available for building row conditions. In this example, because you want to limit the rows to those where the Lender Code is 899986, you need to select the CURR_LEN_CODE column from the selection list (Figure 11–48).

3. Press the **Forward** key until CURR_LEN_CODE is displayed.
4. Type **28** in the Row Conditions dialog panel to select the CURR_LEN_CODE column.
5. Press **Enter**.
6. The Comparison Operators dialog panel is now displayed (Figure 11–49).

```

+-----+
|                                     |
|               Comparison Operators  |
|                                     |
| Select a verb and a comparison.      |
|                                     |
| Verb. . . . 1 1. Is                 |
|                                     | 2. Is not                 |
|                                     | 1 to 7 of 10 |
| Comparison 1 1. Equal to...         |
|                                     | 2. Less than... |
|                                     | 3. Less or equal to... |
|                                     | 4. Greater than... |
|                                     | 5. Greater or equal to... |
|                                     | 6. Between... |
|                                     | 7. Starting with... |
|                                     |
| F1=Help  F7=Backward  F8=Forward  |
| F12=Cancel                |
|                                     |
+-----+

```

Figure 11–49, Comparison Operators Dialog Panel

In the Comparison Operators dialog panel, you must select two options: VERB (Is or Is not), and the desired COMPARISON. Verb Option 1 (IS) and comparison Option 1 (EQUAL TO) are

defaults. In this example, the row desired is If CURR_LEN_CODE Is Equal To '899986'. If you want a different verb or comparison operator, just type the corresponding number for the desired option.

Figure 11–50 shows how Prompted Query operators relate to SQL WHERE statements:

Prompted Syntax	SQL Syntax	SQL Example
Is Equal to	=	WHERE CURR_LEN_CODE = 899986
Is Less than	<	WHERE CURR_LEN_CODE < 899986
Is Less or equal to	<=	WHERE CURR_LEN_CODE <= 899986
Is Greater than...	>	WHERE CURR_LEN_CODE > 899986
Is Greater or equal to	>=	WHERE CURR_LEN_CODE >= 899986
Is not equal to	<>	WHERE CURR_LEN_CODE <> 899986
Is Between...	BETWEEN	WHERE CURR_LEN_CODE BETWEEN 832885 and 899986
Is Starting with...	LIKE 'x%'	WHERE CURR_LEN_CODE LIKE '8%'
Is Ending with...	LIKE '%x'	WHERE CURR_LEN_CODE LIKE '%9'
Is Containing...	LIKE '%x%'	WHERE CURR_LEN_CODE LIKE '%3%'
Is NULL	IS NULL	WHERE CURR_LEN_CODE IS NULL

Figure 11–50, Prompted Query Operators

The SQL equivalent for the IS NOT option is just like the IS SQL equivalent, but the word “not” precedes the column name.

7. Press **Enter**.

Continuing with this example, since the EQUAL TO option was selected from the Comparison Operators panel, the last dialog panel in this series, the Equal To dialog panel, displays (Figure 11–51).

The Equal To panel allows you to specify more than one value, each separated by the word “or”. When typing a character string in the Equal To panel, don’t enclose it in quotation marks unless it contains a special character (such as *, -, or /).

Equal To	
Type one or more values, column names, or expressions.	
. . ()
Or. . ()
Or. . ()
Or. . ()
Or. . ()
Or. . ()
F1=Help F4=List F5=Show Field F12=Cancel	

Figure 11-51, Equal To Dialog Panel

8. Type 899986 (or the desired value) in the field inside the first set of parentheses on this panel.
9. Press **Enter**.
10. The result of the dialog is shown in the echo area, and the Specify dialog panel displays again (Figure 11-52).

PROMPTED QUERY	MODIFIED LINE 1																
Tables: LOAN Columns: CURR_MAT_DT CURR_LOAN_STAT AMT OUT_PRIN_BAL CURR_LEN_CODE SCH_CODE STU_NO Row Conditions: If CURR_LEN_CODE Is Equal To '899986' *** END *** OK, ENTER performed. Please proceed.	<table border="1"> <thead> <tr> <th colspan="2">Specify</th> </tr> </thead> <tbody> <tr> <td colspan="2">Select an item.</td> </tr> <tr> <td>1. Tables...</td> <td></td> </tr> <tr> <td>2. Columns...</td> <td></td> </tr> <tr> <td>3. Row Conditions...</td> <td></td> </tr> <tr> <td>4. Sort...</td> <td></td> </tr> <tr> <td>5. Duplicate Rows...</td> <td></td> </tr> <tr> <td colspan="2">F1=Help F12=Cancel</td> </tr> </tbody> </table>	Specify		Select an item.		1. Tables...		2. Columns...		3. Row Conditions...		4. Sort...		5. Duplicate Rows...		F1=Help F12=Cancel	
Specify																	
Select an item.																	
1. Tables...																	
2. Columns...																	
3. Row Conditions...																	
4. Sort...																	
5. Duplicate Rows...																	
F1=Help F12=Cancel																	

Figure 11-52, Row Conditions Displayed in Echo Area with Specify Dialog Panel

There is no default number selected in the Specify dialog panel at this point. To select items 4 or 5, type the appropriate number.

Notice that in the echo area Prompted Query has put single quotations around the word 899986 because it consists of character data. You would have to put single quotes around it yourself if you wrote the row condition in SQL. But you should not enclose character data in quotation marks when using the Equal To panel in Prompted query; Prompted Query will supply them for you.

11.4.8 Canceling out of the Dialog Panel

After creating your query, exit from the Specify dialog panel:

1. Press the **Cancel** key.
2. The Specify dialog panel is removed and the finished query is displayed in the echo area.

11.4.9 Running the Query

To run the query:

1. Press the **Run** key.
2. An example of the report that would be displayed from the example query is shown in Figure 11–53.

REPORT		LINE 1		POS 1		79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	CURR LEN CODE	SCH CODE	STU NO
1987-09-01	PF	1250	0	899986	001526	37000002
1987-09-01	PF	2500	0	899986	001526	37000002
1987-09-01	PF	1338	0	899986	001526	37000002
1988-04-01	DU	4000	0	899986	002199	37000004
1991-12-01	RP	7500	0	899986	002838	37000007
1992-11-01	RP	2333	0	899986	003765	37000008
1992-11-01	RP	1699	0	899986	003765	37000008
1992-11-01	RP	1699	0	899986	003765	37000008
1992-11-01	RP	2625	0	899986	003765	37000008
1983-11-13	PF	2500	0	899986	002083	37000009
1985-11-29	PF	5000	0	899986	002218	37000010
1983-08-01	PF	5000	0	899986	004757	37000011
1=Help		2=	3=End	4=Print	5=Chart	6=Query
7=Backward		8=Forward	9=Form	10=Left	11=Right	12=
OK, this is the REPORT from your RUN command.						SCROLL ==>
COMMAND ==>						
PAGE						

Figure 11–53, Report Panel Displaying Results of the RUN Command

11.4.10 Changing the Query

You may decide the report is not what you wanted. The query can easily be changed.

1. Press the **Query** key to return to the Prompted Query panel.
2. If you want the report ordered by SCH_CODE:
3. Press the **Specify** key to display the Specify dialog panel.

4. Type **4** to select the SORT option.
5. Press **Enter**.
6. The Sort dialog panel displays (Figure 11–54).

```

+-----+
|              Sort              |
| Select the order for sorting and the |
| column you want to sort.         |
| Order...                        |
| 1 1. Ascending (A-Z, 0-9)        |
|   2. Descending (9-0, Z-A)      |
|                                1 to 6 of 7 |
| Columns...                      |
| 1. CURR_MAT_DT                 |
| 2. CURR_LOAN_STAT              |
| 3. AMT                         |
| 4. OUT_PRIN_BAL                |
| 5. CURR_LEN_CODE               |
| 6. SCH_CODE                    |
+-----+
| F1=Help  F7=Backward  F8=Forward |
| F12=Cancel                                     |
+-----+

```

Figure 11–54, Sort Dialog Box

At the bottom of this panel, all columns selected in the query are listed. The data cannot be sorted by an unselected column.

7. Select the corresponding **number** associated with SCH_CODE by typing **6**.

The top of the panel prompts to select the desired sort order: ascending or descending. The default is ascending.

8. Press **Enter**.
9. Press the **Cancel** key.

The SORT condition is now added to the echo area of Prompted Query. If you wish to delete lines from the query, rather than add new lines, use the **Delete** key.

10. Press the **Run** key to run the query and display the report.

11.4.11 Saving the Query

You can save your prompted query in the database and run it whenever you want.

To save your query:

1. Type **SAVE QUERY AS SCHCODE_Q** (**SHARE = YES** or **(S=Y** at the “Command” prompt.
2. Press **Enter**.

Your query is saved in the database, and the name you gave the query is displayed at the top of the Prompted Query panel.

11.4.12 Retrieve the Saved Query

Queries cannot be retrieved if any Prompt dialog panel is displayed, so be sure to exit from all prompt panels before retrieving a query. To retrieve the saved query:

1. Type **DISPLAY SCHCODE_Q** at the “Command” prompt.
2. Press **Enter**.

QMF retrieves the saved query from the database and displays it in the Prompted Query panel (Figure 11–55).

PROMPTED QUERY	ED0.SCHCODE_Q	LINE	1
Tables: .LOAN			
Columns: CURR_MAT_DT CURR_LOAN_STAT AMT OUT PRIN_BAL CURR_LEN_CODE SCH_CODE STU_NO			
Row Conditions: If CURR_LEN_CODE Is Equal To '899986'			
Sort: Ascending by SCH_CODE			
1=Help 2=Run 3=End 4=Show SQL 5=Change 6=Specify 7=Backward 8=Forward 9=Form 10=Insert 11=Delete 12=Report			
OK, SCHCODE_Q is displayed.			
COMMAND ==>			
			SCROLL ==> PAGE

Figure 11–55, Retrieved Query Displayed in the Prompted Query Panel

11.4.13 Displaying the SQL Equivalent

The Prompted Query can be shown in SQL format. To display the Prompted Query in SQL format:

1. Press the **Show SQL** key.

2. The Prompted Query is displayed in SQL Query format (Figure 11–56).

ED0.SCHCODE_Q	LINE	1
+-----+-----+-----+-----+-----+-----+		
SQL		
The following SQL statement is equivalent to your query.		
1 to 6 of 6		
SELECT A.CURR_MAT_DT, A.CURR_LOAN_STAT, A.AMT		
, A.OUT_PRIN_BAL, A.CURR_LEN_CODE		
, A.SCH_CODE, A.STU_NO		
FROM .LOAN A		
WHERE ((A.CURR_LEN_CODE = '899986'))		
ORDER BY 6 ASC		
+-----+-----+-----+-----+-----+-----+		
F1=Help F7=Backward F8=Forward F12=Cancel		
+-----+-----+-----+-----+-----+-----+		

Figure 11–56, Prompted Query Displayed in SQL Format

This is the syntax SQL needs to retrieve the information that Prompted Query selected.

11.4.14 Convert the Query

The SQL query that is displayed using the **Show SQL** key, while informative, cannot be edited, run, or saved. To convert a Prompted Query into an equivalent SQL query that can be edited, run, or saved, use the **CONVERT** command. Converting a query is especially useful for expanding a basic prompted query into a more complex query using the SQL language.

The SQL query produced with the **CONVERT** command cannot be converted back to a Prompted Query format. If you want to keep a copy of your original prompted query, be sure to save it before converting it.

To convert the prompted query you have been working with:

1. Press the **Cancel** key to return to the “Command” prompt.
2. Type **CONVERT QUERY**.
3. Press **Enter**.
4. The Convert Confirmation panel displays (Figure 11–57).

```
+-----+  
|               CONVERT Confirmation              |  
+-----+  
  
| WARNING:                                         |  
| Your CONVERT command will convert your current query and place |  
| the SQL translation on the SQL query panel. The original query  |  
| cannot be redisplayed unless it has been saved or exported.    |  
+-----+  
  
| Do you want to convert this query?              |  
| 1. YES - Convert the query to an SQL query.      |  
| 2. NO  - Do not convert the query to an SQL query; do not execute the |  
|          CONVERT command.                        |  
+-----+  
  
| F1=Help   F12=Cancel                           |  
+-----+
```

Figure 11-57, Convert Confirmation Panel

This Convert Confirmation panel warns you that the original query cannot be redisplayed, unless you have a saved copy of it in the database.

5. Press **Enter** to accept the YES option (the default) and complete the conversion.
6. The SQL query equivalent is displayed in the SQL Query panel (Figure 11–58).

```

SQL QUERY                                LINE      1

SELECT A.CURR_MAT_DT, A.CURR_LOAN_STAT, A.AMT, A.OUT_PRIN_BAL, A.CURR_LEN_CODE
      , A.SCH_CODE, A.STU_NO
FROM   .LOAN A
WHERE  ((A.CURR_LEN_CODE = '899986'))
ORDER BY 6 ASC
*** END ***

```

Figure 11-58, Converted SQL Query Panel

You can now modify this query and save it under a new name to avoid destroying the saved copy of the Prompted Query.

11.4.15 Reviewing Data from More than One Table—Joining Tables

In all our examples so far, we have been selecting information from one table, LOAN. However, the results of a query can include information from more than one table. To create a query that draws data from more than one table, use a JOIN statement.

A join links two or more tables by using common columns, that is columns that appear in both data tables. Common columns can have the same column name or different names in different tables. Through this link, the query can access related information from the two tables. Only those records having a matching value in the common columns are selected for the report.

The maximum number of tables that can be joined is 15. When joining tables, keep in mind that some of the tables are very large. For that reason, you need to plan the results you want from a query very carefully.

11.4.16 Example of Joining Tables

The LOAN table contains information about all NSLDS loans. The STU table contains information about all the students. You want to list the loans greater than \$1,000 with the students' names.

Student's first name and last name are listed in the STU table, but STU has no loan information. Loan amounts are listed in LOAN. Data must be selected from both tables. We need a way to tell which rows in STU correspond to which rows in LOAN, or which loans belong to which students.

Each entry in STU has a student number, and each loan in LOAN has a student number. We can link the information in the two tables by matching the student numbers and joining the appropriate rows. This is called joining the tables because the corresponding rows are joined together to form a single row in the report.

To create a query that displays the loan number, maturity date, amount, student's first name, and student's last name for all loans greater than \$1,000, select the tables from the Prompted Query panel by using the following procedure:

1. Type **LOAN** in the Tables dialog panel.
2. Type **STU** on the next line of the Table dialog panel.
3. Press **Enter**.
4. The Join Columns dialog panel displays (Figure 11–59).

Join Columns	
Select a column from each table. Rows that have equal values in those columns will be joined.	
LOAN	STU
1. NO	1. NO
2. DT	2. CURR_SSN
3. FFEL_DUP_ID	3. CURR_PSEUDO_IND
4. PER_BEG_DT	4. CURR_FST
5. PER_END_DT	5. CURR_LST
6. CURR_MAT_DT	6. MID_INIT
7. ACAD_LVL	7. DOB
8. CURR_LOAN_STAT	8. CITZ
1 to 8 of 42	
F1=Help F5=Describe F7=Backward F8=Forward F12=Cancel	

Figure 11–59, Join Columns Dialog Panel

11.4.16.1 Joining the Columns

To get data from two tables, you must link the tables together (join them) on columns that contain the same kind of information. There must be some overlap of information, some common ground. The STU_NO column in the LOAN table and the NO column in the STU table both contain student numbers. You can join the tables on these two columns.

By joining these two tables by student number, you are linking every row in LOAN to every row in STU with the same student number.

On the Join Columns panel:

1. Press the **Forward** key to find STU_NO in LOAN.
2. Type **36**, to select STU_NO item from the LOAN table.
3. Press the **Backward** key to find NO in STU.
4. Press the **Tab** key.
5. Type **1**, to select NO item from the STU table.
6. Press **Enter**.
7. The results of this JOIN are now displayed in the echo area, and the Specify dialog panel displays (Figure 11–60).

PROMPTED QUERY	MODIFIED LINE 1
Tables: .LOAN (A) .STU (B) Join Tables: A.STU_NO And B.NO Columns: ALL *** END ***	+-----+ Specify Select an item. 2 1. Tables... 2. Columns... 3. Row Conditions... 4. Sort... 5. Duplicate Rows... +-----+ F1=Help F12=Cancel +-----+
OK, ENTER performed. Please proceed.	

Figure 11–60, Results of Join Displayed in Echo Area with Specify Dialog Panel

The letter identifiers (shown in the echo area as A.STU_NO and B.STU) are used by QMF to help you differentiate between the tables. In this example, the columns on which you are joining the tables have different names. However, if you want to join two tables on columns having the same name, the letter identifiers let you distinguish between the two columns.

To complete the join of these two tables, you must also join Student Sequence Number. To find all the fields that must be joined in order to properly join tables in NSLDS, refer to Section 10.2. Furthermore, some attributes (columns) may not be what you think they are. For example, STU_NO and NO seem to be Social Security Numbers; they are not. CURR_SSN in STU is the current Social Security Number for that student.

Do not judge a column by its name. Refer to the definitions of fields in Section 10.2 to make sure you are using the right ones.

11.4.16.2 Selecting the Columns

On the Specify dialog panel:

1. Press **Enter** to select the COLUMNS option.
2. The Columns dialog panel displays (Figure 11–61).

Columns	
Select one or more columns. You can also select either an expression or function.	
1 to 8 of 59	
.LOAN -- all	
NO	
DT	
FFEL_DUP_ID	
PER_BEG_DT	
PER_END_DT	
CURR_MAT_DT	
ACAD_LVL	
1. Expression (A+B, etc.)...	
2. Summary Functions (SUM, etc.)...	
F1=Help	F5=Describe F7=Backward
F8=Forward	F12=Cancel

Figure 11–61, Columns Dialog Panel

3. Type **X** beside NO, CURR_MAT_DT, and AMT from LOAN in the Columns dialog panel.
4. Press the **Forward** key to advance to the STU table.
5. Type **X** beside CURR_FST and CURR_LST from STU.
6. Press **Enter**.
7. The columns you selected are now displayed in the echo area of the Specify dialog panel (Figure 11–62).

PROMPTED QUERY	MODIFIED LINE 1
Tables:	Specify
.LOAN(A)	Select an item.
.STU(B)	
Join Tables:	3 1. Tables...
A.STU_NO And B.NO	2. Columns...
Columns:	3. Row Conditions...
A.NO	4. Sort...
CURR_MAT_DT	5. Duplicate Rows...
AMT	F1=Help F12=Cancel
CURR_FST	
CURR_LST	
*** END ***	
OK, ENTER performed. Please proceed	

Figure 11–62, Columns Selected Displayed in Echo Area

11.4.16.3 Building a Row Condition

You want to display only those rows where the amount is greater than 1000. Remember that you can build a row condition based on a column you have chosen not to show.

To build the row condition If AMT is GREATER THAN 1000:

1. Type **3** and press **Enter** on the Specify dialog panel to select the ROW CONDITIONS option.
2. Press the **Forward** key to scroll forward.
3. Type **10** and press **Enter** on the Row Conditions dialog panel to select the AMT option.
4. Type **4** and press **Enter** on the Comparison Operators dialog panel to select the VERB “is” and the COMPARISON OPERATOR “greater than”.
5. Type **1000** and press **Enter** on the Greater Than dialog panel to display the Specify dialog panel.
6. Press the **Cancel** key to end the query creation process and remove the Specify dialog panel.
7. Your finished query is displayed (Figure 11–63).

```

PROMPTED QUERY                                MODIFIED  LINE    1

Tables:
  .LOAN (A)
  .STU (B)

Join Tables:
  A.STU_NO And B.NO

Columns:
  A.NO
  CURR_MAT_DT
  AMT
  CURR_FST
  CURR_LST

Row Conditions:
  If AMT Is Greater Than 1000

*** END ***
1=Help      2=Run      3=End      4=Show SQL  5=Change    6=Specify
7=Backward  8=Forward  9=Form    10=Insert  11=Delete   12=Report
OK, CANCEL command executed successfully.
COMMAND ==>                                SCROLL ==> PAGE

```

Figure 11–63, Complete Query Displayed in the Prompted Query Panel

If for some reason you wanted to change the query, press the **Specify** key to recall the Specify dialog panel.

11.4.16.4 Running the Query

To run the query:

1. Press the **Run** key to produce the report in Figure 11–64.

REPORT			LINE 1	POS 1	79
NO	CURR MAT DT	AMT	CURR FST	CURR LST	
37000002	1987-09-01	1250	CHRISTOPHER	LEE	
37000002	1987-09-01	2500	CHRISTOPHER	LEE	
37000002	1987-09-01	1338	CHRISTOPHER	LEE	
37000003	1992-08-01	2625	MICHAEL	STEWART	
37000004	1988-04-01	4000	JEFFREY	MYERS JR	
37000005	1981-11-01	2500	STEVEN	HOLDEN	
37000006	1993-11-28	2625	WILLIAM	CHARBONNIER	
37000007	1991-12-01	7500	JEFFREY	CHARBONNIER	
37000007	1995-11-13	1703	JEFFREY	CHARBONNIER	
37000008	1992-11-01	2333	PATRICIA	WALTERS	
37000008	1992-11-01	1699	PATRICIA	WALTERS	
37000008	1992-11-01	1699	PATRICIA	WALTERS	
1=Help 2= 3=End 4=Print 5=Chart 6=Query					
7=Backward 8=Forward 9=Form 10=Left 11=Right 12=					
OK, this is the REPORT from your RUN command.					
COMMAND ==>					
SCROLL ==> PAGE					

Figure 11–64, Report Panel Displaying Results of RUN Command

11.5 Query by Example

QBE is a language for querying relational data by making changes to a grid that represents the underlying table. QBE keywords are used to retrieve, update, delete, and insert data. They are also used to control the presentation of report data.

11.5.1 Displaying the QBE Query Panel

Before you can write a query in QBE, you need to display the QBE Query panel. This can be done by changing the QMF Profile or by entering the command RESET QUERY (LANGUAGE = QBE) from the QMF “Command” prompt.

1. Type **RESET QUERY (LANGUAGE = QBE)**.
2. Press **Enter**.
3. The QBE Query panel displays (Figure 11–65).

```
QBE QUERY                                     LINE 1

*** END ***

1=Help      2=Run      3=End      4=Enlarge      5=Reduce      6=Draw
7=Backward  8=Forward  9=Form   10=Left      11=Right     12=Report
OK, this is an empty QBE QUERY.
COMMAND ==>                                SCROLL ==> PAGE
```

Figure 11–65, QBE Query Panel

11.5.2 Drawing Example Tables

In QBE, queries are created in an “example table.” An example table is a grid in which you enter instructions about how you want the data presented in your report. To display a grid of the LENDER table:

1. Type **DRAW LEN** at the “Command” prompt.
2. Press **Enter**.

The LENDER table is a new example table used in the following examples. The framework for this table is shown in Figure 11–66.

QBE QUERY				MODIFIED	LINE 1
LEN	CODE	NM	STR_ADD	CITY	ST
*** END ***					
1=Help 2=Run 3=End 4=Enlarge 5=Reduce 6=Draw					
7=Backward 8=Forward 9=Form 10=Left 11=Right 12=Report					
OK, example table created by DRAW.					
COMMAND ==>				SCROLL ==> PAGE	

Figure 11–66, Framework of the LENDER Table

Within this framework, you can select the columns to present with a “P”, as explained in the following section. Use other QBE keywords to control the presentation of the report data and make changes to the database.

11.5.3 Presenting Certain Columns of a Table

To view data from selected columns of the example table, type **P.** under the names of the columns desired. Typing **P.** under the table name selects all columns from the table.

1. Type **P.** under CODE.
2. Type **P.** under NM.
3. Type **P.** under STR_ADD.
4. Type **P.** under CITY.
5. Type **P.** under ST.
6. The selections are displayed on the screen (Figure 11–67).

QBE QUERY						MODIFIED	LINE 1
LEN	CODE	NM	STR_ADD	CITY	ST		
-----	-----	-----	-----	-----	-----		
	P.	P.	P.	P.	P.		
*** END ***							
1=Help	2=Run	3=End	4=Enlarge	5=Reduce	6=Draw		
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=Report		
OK, example table created by DRAW.							
COMMAND ==>				SCROLL ==> PAGE			

Figure 11–67, Selected Columns in QBE

- Press the **Run** key.
- QBE produces the report shown in Figure 11–68.

REPORT			LINE 1	POS 1	79
CODE	NM	STR_ADD			
-----	-----	-----			
444444	PRE 1984 DEFAULT LENDER				
800000	FIRST OF AMERICA BANK-WHITESIDE COU	PO BOX 152			
800001	BANK OF COMMERCE				
800002	AMSOUTH BANK	P O DRAWER 431			
800003	SOUTHTRUST BANK DBA ALABAMA CITY BK	P O BOX 1860			
800004	ALBERTVILLE NATIONAL BANK	PO BOX 10			
800005	SOUTHTRUST BANK OF CENTRAL ALABAMA	PO BOX 759			
800006	WEST ALABAMA BANK & TRUST	PO BOX 406			
800007	THE AMERICAN BANK	P.O.BOX 70			
800008	AMERICAN NATIONAL BANK				
800009	THE AMERICAN NATIONAL BANK OF UNION	PO BOX 660			
800010	AUBURN NATIONAL BANK	101 N COLLEGE			
800011	SOUTHTRUST BANK OF BALDWIN COUNTY	PO BOX 531			
1=Help	2=	3=End	4=Print	5=Chart	6=Query
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=
OK, this is the REPORT from your RUN command.					
COMMAND ==>				SCROLL ==> PAGE	

Figure 11–68, Report Panel Displaying Results of RUN Command

11.5.4 Changing the Order of Columns

The columns are, by default, displayed in the same order as they are listed in the table, as in Figure 11–68. To change the order of the columns displayed, type over the names of the columns in the example table.

To reverse the NM and CODE columns in Figure 11–68, follow these steps:

- Type **NM** over the CODE column.
- Press **Tab**.

3. Type **CODE** over the NM column.
4. Press the **Run** key.
5. The Report panel displays with NM and CODE columns reversed (Figure 11–69).

REPORT		LINE 1	POS 1	79
NM	CODE	STR ADD		
-----	-----	-----		
PRE 1984 DEFAULT LENDER	444444			
FIRST OF AMERICA BANK-WHITESIDE COU	800000	PO BOX 152		
BANK OF COMMERCE	800001			
AMSOUTH BANK	800002	P O DRAWER 431		
SOUTHTRUST BANK DBA ALABAMA CITY BK	800003	P O BOX 1860		
ALBERTVILLE NATIONAL BANK	800004	PO BOX 10		
SOUTHTRUST BANK OF CENTRAL ALABAMA	800005	PO BOX 759		
WEST ALABAMA BANK & TRUST	800006	PO BOX 406		
THE AMERICAN BANK	800007	P.O.BOX 70		
AMERICAN NATIONAL BANK	800008			
THE AMERICAN NATIONAL BANK OF UNION	800009	PO BOX 660		
AUBURN NATIONAL BANK	800010	101 N COLLEGE		
SOUTHTRUST BANK OF BALDWIN COUNTY	800011	PO BOX 531		
1=Help	2=	3=End	4=Print	5=Chart
7=Backward	8=Forward	9=Form	10=Left	11=Right
OK, this is the REPORT from your RUN command.				
COMMAND ==>				SCROLL ==> PAGE

Figure 11–69, Report Panel Displaying NAME and CODE Reversed

6. Press the **Right** key to view report data in the ST column.

11.5.5 Presenting Certain Rows of a Table

There are many ways to choose which rows of a table you want to present.

To display only those rows of a table that have a certain value in some column, put the value under the column in the example table. That value is then a condition. The query selects just those rows of the table that contain the value in the indicated column.

You can, for example, display the same column names shown in the example table, but select only the rows with TX in the ST column.

1. Press the **Query** key to return to the QBE Query panel.
2. Type **TX** in the ST column over P.
3. Press the **Run** key.
4. The Report panel displays (Figure 11–70). The ST column data is no longer displayed in the report since the data is the same for all rows.

Figure 11-70, Report Panel Displaying Only Rows with TX in State Column

QMF has been providing a default form in all the previous examples. If you want your report to look more formal, with more descriptive column headings, a title at the top of the report, a sub-total of your columns, and similar refinements, you can create your own forms using the QMF form panels.

REPORT 1:

Figure 11-71, Default Form Report Panel

REPORT 2:

REPORT				LINE 1052	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
899986	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00
	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00
	024618	37001289	RP	1991-01-01	\$5,000.00	\$0.00
	024714	122002531	RP	1988-12-01	\$2,500.00	\$0.00
	024714	122002531	RP	1986-05-01	\$2,500.00	\$0.00
	024984	37000321	RP	1992-11-01	\$2,625.00	\$0.00
LENDER 899986 TOTALS					\$2,877,596.00	\$0.00
TOTALS					\$2,881,596.00	\$0.00

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Figure 11-72, Formatted Form Report Panel

The data is the same in both reports, but the appearance is different. You can change one report into the other without changing your query.

11.6.1 What Is Formatting?

REPORT 1 and REPORT 2 have been formatted differently, and formatting determines the visual layout of data.

In previous sections, QMF automatically determined each report's format for you, as it did in REPORT 1. But in REPORT 2:

- The order of the columns is different.
- Column headings are more descriptive.
- The headings and data are aligned differently.
- Column widths are different.
- Spacing between columns is more attractive.
- Figures use dollar signs and commas.
- Totals and subtotals provide summary information.
- A page heading and footer make the report more descriptive.

11.6.2 Changing a Report Format

To change REPORT 1 into REPORT 2, you must change the form panels that QMF generated for REPORT 1. The following examples make successive changes to the form panels to check their effect on the report. The final result of these changes is REPORT 2.

Figure 11–73 shows the *SQL Query* panel for our example.

SQL QUERY		MODIFIED	LINE	1
SELECT	CURR_MAT_DT, CURR_LOAN_STAT, AMT, OUT_PRIN_BAL, CURR_LEN_CODE,			
	SCH_CODE, STU_NO			
FROM	LOAN			
WHERE	CURR_LEN_CODE IN ('800241','899986')			
	AND CURR_LOAN_STAT > 'PF'			
	AND AMT > 1000			
	AND OUT_PRIN_BAL BETWEEN 0 AND 100			
ORDER BY	CURR_LEN_CODE, SCH_CODE			
*** END ***				
1=Help	2=Run	3=End	4=	5=Chart
7=Backward	8=Forward	9=Form	10=Insert	11=Delete
OK, QUERY is displayed.				
COMMAND ==>				
SCROLL ==> PAGE				

Figure 11–73, *SQL Query Panel with Query Displayed*

11.6.3 Displaying Form Panels

To display the report shown in Figure 11–74:

1. Press the **Run** key.
2. Press the **Form** key from the Report panel (Figure 11–74) to see the default form.

REPORT		LINE	1	POS	1	79
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	CURR LEN CODE	SCH CODE	STU NO
-----	-----	-----	-----	-----	-----	-----
1988-07-01	RP	2500	0	899986	001002	122001636
1990-12-01	RP	1200	0	899986	001002	122002066
1988-07-01	RP	2500	0	899986	001002	122001636
1992-11-01	RP	1147	0	899986	001005	207003128
1992-11-01	RP	1479	0	899986	001005	207003128
1988-10-01	RP	2500	0	899986	001020	37001495
1988-10-01	RP	2275	0	899986	001020	37001495
1992-12-01	RP	2500	0	899986	001033	37000489
1990-01-01	RP	4000	0	899986	001033	37000515
1984-03-01	RP	2500	0	899986	001033	37000791
1987-04-09	RP	2500	0	899986	001033	37001379
1990-01-01	RP	2500	0	899986	001033	37001406
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, this is the REPORT from your RUN command.						
COMMAND ==>						
SCROLL ==> PAGE						

Figure 11–74, *Report Panel Displaying Results of RUN Command*

The default form is automatically generated by QMF at the time the query is run. It contains certain choices made by QMF about how the report should be formatted. QMF used the

default form to produce REPORT 1. The default form QMF generated for our query example is shown in Figure 11–75.

```

FORM.MAIN

COLUMNS:          Total Width of Report Columns: 73
NUM COLUMN HEADING  USAGE  INDENT  WIDTH  EDIT  SEQ
-----
 1 CURR_MAT_DT      2      10    TDY-   1
 2 CURR_LOAN_STAT   2       4     C     2
 3 AMT              2      11    L     3
 4 OUT_PRIN_BAL     2      11    L     4
 5 CURR_LEN_CODE    2       6     C     5

PAGE:  HEADING  ==>
      FOOTING  ==>
FINAL:  TEXT    ==>
BREAK1: NEW PAGE FOR BREAK? ==> NO
      FOOTING  ==>
BREAK2: NEW PAGE FOR BREAK? ==> NO
      FOOTING  ==>
OPTIONS: OUTLINE? ==> YES          DEFAULT BREAK TEXT? ==> YES

1=Help    2=Check    3=End        4=Show    5=Chart    6=Query
7=Backward 8=Forward  9=          10=Insert 11=Delete 12=Report
OK, FORM is displayed.
COMMAND ==>                                SCROLL ==> PAGE

```

Figure 11–75, Form.Main Panel

If you do not see all the column headings, use the **FORWARD** key to scroll forward one page at a time. When the word ‘*** END ***’ is displayed, you have reached the last column on the Form.Main panel.

There are several backup panels to the Form.Main panel that allow for more formatting options than Form.Main alone. The only backup panel described in this appendix is Form.Columns. All you need to know for now is that these other panels exist. To view the Form.Columns panel:

3. Press the **Show** key.
4. The Show Command Prompt panel displays (Figure 11–76). The **Show** key is used to display a list of QMF panels so a different panel may be easily chosen.


```

+-----+
|              SHOW Command Prompt              |
|-----+-----+
| Enter the name or number of the panel to show. (          ) 1 to 13 of 17 |
|-----+-----+
| 1. PROFile          Current user profile          |
| 2. PROC             Current procedure             |
| 3. Query            Current query                 |
| 4. Report           Current report                |
| 5. CHART            Default chart                 |
| 6. Globals          Global variable list          |
| 7. Form             Current form                  |
| 8. Form.Main        Basic report formatting        |
| 9. Form.COLUMNS    Column attributes             |
| 10. Form.CONditions User-defined conditions        |
| 11. Form.CALC       User-defined calculations      |
| 12. Form.Page       Page heading and footing text  |
| 13. Form.Detail     Detail text                   |
|-----+-----+
| F1=Help F3=End F7=Backward F8=Forward           |
+-----+

```

Figure 11-76, Show Command Prompt Panel

5. Type the corresponding **number** to select the FORM.COLUMNS option (i.e., **9**).
6. Press **Enter**.
7. The Form.Columns panel displays (Figure 11-77).

```

FORM.COLUMNS
Total Width of Report Columns: 73
NUM COLUMN HEADING          USAGE  INDENT WIDTH EDIT  SEQ
-----
1 CURR MAT DT                2      10  TDY-  1
2 CURR LOAN STAT             2       4    C   2
3 AMT                        2      11    L   3
4 OUT PRIN BAL               2      11    L   4
5 CURR LEN CODE              2       6    C   5
6 SCH CODE                   2       6    C   6
7 STU NO                     2      11    L   7
*** END ***

1=Help    2=Check    3=End      4=Show    5=Chart    6=Query
7=Backward 8=Forward 9=Specify 10=Insert 11=Delete 12=Report
OK, FORM.COLUMNS is shown.
COMMAND ==>
SCROLL ==> PAGE

```

Figure 11-77, Form.Columns Panel

11.6.4 Changing the Column Sequence

The NUM column displays the number of each column in the order it was selected by the query. You cannot change this field, except by running a different query, which generates a new form.

You can, however, change the order in which the columns are displayed in your report by changing the SEQ (sequence) fields corresponding to each column in the form. For the final report in our example, we want the columns in this order: CURR_LEN_CODE, SCH_CODE, STU_NO, CURR_LOAN_STAT, CURR_MAT_DT, AMT, OUT_PRIN_BAL.

1. Press **Tab** to advance your cursor to the SEQ column. Change the sequence for these columns as follows:
2. Type **5** for the CURR_MAT_DT column.
3. Type **4** for CURR_LOAN_STAT column.
4. Type **6** for the AMT column.
5. Type **7** for the OUT_PRIN_BAL column.
6. Type **1** for the CURR_LEN_CODE column.
7. Type **2** for the SCH_CODE column.
8. Type **3** for the STU_NO column.

To view the effects of a change to the form:

1. Press the **Report** key.
2. Review your results.
3. Press the **Form** key to make more changes if you wish.

The effects of these changes on our report are shown in Figure 11–78.

REPORT		LINE 1		POS 1		79	
CURR LEN CODE	SCH CODE	STU NO	CURR LOAN STAT	CURR MAT DT	AMT	OUT PRIN BAL	
800241	001002	547009986	RP	1992-08-21	4000	0	
899986	001002	122001636	RP	1988-07-01	2500	0	
899986	001002	122001636	RP	1988-07-01	2500	0	
899986	001002	122002066	RP	1990-12-01	1200	0	
899986	001005	207003128	RP	1992-11-01	1147	0	
899986	001005	207003128	RP	1992-11-01	1479	0	
899986	001020	37001495	RP	1988-10-01	2500	0	
899986	001020	37001495	RP	1988-10-01	2275	0	
899986	001033	37000489	RP	1992-12-01	2500	0	
899986	001033	37000515	RP	1990-01-01	4000	0	
899986	001033	37000791	RP	1984-03-01	2500	0	
899986	001033	37001379	RP	1987-04-09	2500	0	
1=Help		2=	3=End	4=Print	5=Chart	6=Query	
7=Backward		8=Forward	9=Form	10=Left	11=Right	12=	
OK, REPORT is displayed.							
COMMAND ==>						SCROLL ==>	PAGE

Figure 11–78, Report Panel Displaying the Results of Column Sequence Change

2. Type **LOAN_MAT** over CURR_MAT_DT in column 1.
3. Type **ST** for column 2.
4. Type **LOAN_AMT** for column 3.
5. Type **OUT_PRIN** for column 4.
6. Type **LEN** for column 5.
7. Press the **Report** key.

FORM.COLUMNS		MODIFIED				
Total Width of Report Columns: 73						
NUM	COLUMN HEADING	USAGE	INDENT	WIDTH	EDIT	SEQ
1	LOAN_MAT		2	10	TDY-	5
2	ST		2	4	C	4
3	LOAN_AMT		2	11	L	6
4	OUT_PRIN		2	11	L	7
5	LEN		2	6	C	1
6	SCH_CODE		2	6	C	2
7	STU_NO		2	11	L	3
***_END ***						

1=Help 2=Check 3=End 4=Show 5=Chart 6=Query
 7=Backward 8=Forward 9=Specify 10=Insert 11=Delete 12=Report
 OK, FORM is displayed.
 COMMAND ===> SCROLL ===> PAGE

EPORT		LINE 1		POS 1		79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
800241	001002	547009986	RP	1992-08-21	4000	0
899986	001002	122001636	RP	1988-07-01	2500	0
899986	001002	122001636	RP	1988-07-01	2500	0
899986	001002	122002066	RP	1990-12-01	1200	0
899986	001005	207003128	RP	1992-11-01	1147	0
899986	001005	207003128	RP	1992-11-01	1479	0
899986	001020	37001495	RP	1988-10-01	2500	0
899986	001020	37001495	RP	1988-10-01	2275	0
899986	001033	37000489	RP	1992-12-01	2500	0
899986	001033	37000515	RP	1990-01-01	4000	0
899986	001033	37000791	RP	1984-03-01	2500	0
899986	001033	37001379	RP	1987-04-09	2500	0
899986	001033	37001406	RP	1990-01-01	2500	0
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, REPORT is displayed.						
COMMAND ====>						SCROLL ====> PAGE

Figure 11–80, Report Panel Displaying the Changed Column Headings

11.6.6 Changing the Report Width

At the top of the Form.Columns panel, a centered line is displayed that tells you the total width of your report in number of characters. In this example, the total width of report columns equals 73. This means that the report is 73 characters wide.

You cannot change the total width of report columns directly; but you can change USAGE, INDENT, or WIDTH for any column. When you press **Enter**, the new total width of report columns (in characters) is computed and displayed on the centered line at the top of the panel.

11.6.7 Changing Column Widths and Space Between Columns

Continuing with our example report transformation on the Form.Columns panel:

1. Press the **Form** key to return to Form.Columns panel.
2. Pressing **Tab** twice or **Enter** moves your cursor to the first line.
3. Press **Tab** two times to position the cursor under the WIDTH column, and use your directional keys to choose the row.
4. Type **2**, to change the column WIDTH for the ST column to two characters. The numbers can be overtyped.

The **INDENT** column sets the number of blank spaces to the left of a column. These spaces separate the data in this column from the preceding column or the left margin.

1. Position your cursor as you did for changing the **WIDTH**.
2. Type **4**, to change the value of **INDENT** for the **ST** and **SCH_CODE** columns to 4. This improves the appearance of the report.
3. Press the **Report** key to display the report. Previewing the report lets you be certain the layout fits yours need.

11.6.8 Changing Data and Column Heading Alignment

The placement of the cursor in the **Form.Columns** panel determines which column appears when the *Alignment* panel is selected. For example, if the cursor is positioned on the **LOAN_AMT** option line when the **Specify** key is pressed, the **LOAN_AMT** column heading name is displayed on the *Alignment* panel. From there, the **Previous Column** or **Next Column** key can be used to change the alignment of other column headings or data in your report.

If the cursor is positioned at the “Command” prompt when you press the **Specify** key, the first column of your **Form.Columns** panel is displayed when you get to the *Alignment* panel.

To continue creating our example report from the **Form.Columns** panel shown in Figure 11–79.

1. Press the **Specify** key at the “Command” prompt.
2. The **Specify** panel displays (Figure 11–81).

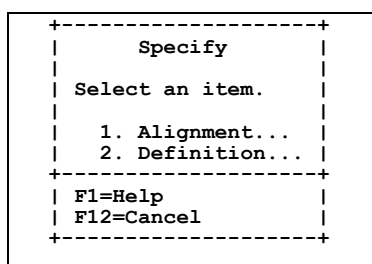
A screenshot of a terminal window showing a 'Specify' panel. The panel is enclosed in a dashed border with '+' characters at the corners. Inside, the text reads: 'Specify' at the top, followed by 'Select an item.' and a numbered list: '1. Alignment...' and '2. Definition...'. At the bottom, it shows 'F1=Help' and 'F12=Cancel'.

Figure 11–81, Specify Panel

3. Type **1**, to select the **ALIGNMENT** option from the **Specify** panel.
4. Press **Enter**.
5. The *Alignment* panel displays over the **Form.Columns** panel (Figure 11–82).

Alignment	
Column Number :	1
Column Heading:	LOAN_MAT
Heading Alignment (DEFAULT)
Data Alignment (DEFAULT)
F1=Help F5=Previous Column F6=Next Column F12=Cancel	

Figure 11–82, Alignment Panel

To bypass the Specify panel, type SPECIFY ALIGNMENT at the Form.Columns “Command” prompt and press **Enter**. The SPECIFY (PF9) key is active on the Form.Columns panel only

Optional alignment values on the Alignment panel include the following: LEFT, CENTER, RIGHT, and DEFAULT. To center each of the column headings in our example:

1. Type **CENTER** directly over the default value for Heading Alignment. Do not press **Enter** until all desired column headings have been changed.
2. Press the **Next Column** key to make the ST column the focus of the Alignment panel.
3. Type **CENTER** over the default value for Heading Alignment.
4. Press the **Next Column** key and type **CENTER** over the Heading Alignment value, following this sequence for the remaining columns.
5. Press **Enter** after making the last desired change to the STU_NO column. The Alignment panel is removed.
6. Press the **Cancel** key to exit the Specify panel.
7. Press the **Report** key to display the revised report shown in Figure 11–83. Notice that all the column headings are now centered above the columns.

REPORT				LINE 1	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
800241	001002	547009986	RP	1992-08-21	4000	0
899986	001002	122001636	RP	1988-07-01	2500	0
899986	001002	122002066	RP	1990-12-01	1200	0
899986	001002	122001636	RP	1988-07-01	2500	0
899986	001005	207003128	RP	1992-11-01	1479	0
899986	001005	207003128	RP	1992-11-01	1147	0
899986	001020	37001495	RP	1988-10-01	2500	0
899986	001020	122002546	DU	1988-12-01	2500	0
899986	001020	122002546	DU	1988-12-01	1137	0
899986	001020	37001495	RP	1988-10-01	2275	0
899986	001033	37000065	DU	1989-01-01	2500	0
899986	001033	37000466	DB	1987-06-30	2500	0
899986	001033	37000489	RP	1992-12-01	2500	0
1=Help				2=	3=End	4=Print
7=Backward				8=Forward	9=Form	10=Left
OK, REPORT is displayed.				5=Chart	6=Query	11=Right
COMMAND ==>				12=		
				SCROLL ==> PAGE		

Figure 11-83, Report Panel Displaying Centered Column Headings

11.6.9 Determining the Way Columns Are Punctuated

Edit codes determine how values in a column are punctuated, if at all. Numeric edit codes (L, D, P, and K) can be followed by a number signifying the scale for that edit code—the number of decimal places to be used for that data. This number can range from 0 to 99. For example, L2 means to display a numeric value using the L edit code, allowing two digits after a decimal. Some common edit codes are described below:

C	Character Data	Specifies no punctuation.
L	Numeric Data	Specifies decimal points and negative signs, if they occur.
D	Numeric Data	Specifies dollar signs (\$) and separators (,) for groups of three digits, as well as decimal points and negative signs that occur.
P	Numeric Data	Specifies numeric data as a percentage using the “%” symbol, as well as decimal points and negative signs that occur.
K	Numeric Data	Supplies a minus sign for negative values, separators (,) for groups of three digits, and decimal placement.

The column labeled EDIT on the Form.Columns panel contains edit codes for report columns. In this example, edit codes were changed to format data in the LOAN_AMT and OUT_PRIN columns in dollar amounts. The edit code for those columns was changed to **D2**. Figure 11-84 shows the results of these changes.

REPORT		LINE 1		POS 1		79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
800241	001002	547009986	RP	1992-08-21	\$4,000.00	\$0.00
899986	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
899986	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
899986	001002	122002066	RP	1990-12-01	\$1,200.00	\$0.00
899986	001005	207003128	RP	1992-11-01	\$1,147.00	\$0.00
899986	001005	207003128	RP	1992-11-01	\$1,479.00	\$0.00
899986	001020	37001495	RP	1988-10-01	\$2,500.00	\$0.00
899986	001020	37001495	RP	1988-10-01	\$2,275.00	\$0.00
899986	001033	37000489	RP	1992-12-01	\$2,500.00	\$0.00
899986	001033	37000515	RP	1990-01-01	\$4,000.00	\$0.00
899986	001033	37000791	RP	1984-03-01	\$2,500.00	\$0.00
899986	001033	37001379	RP	1987-04-09	\$2,500.00	\$0.00
899986	001033	37001406	RP	1990-01-01	\$2,500.00	\$0.00
1=Help		2=	3=End	4=Print	5=Chart	6=Query
7=Backward		8=Forward	9=Form	10=Left	11=Right	12=
OK, REPORT is displayed.						
COMMAND ==>					SCROLL ==> PAGE	

Figure 11–84, Report Panel Displaying Columns with Dollar Amounts

If the column width is too narrow for the output to format, an asterisk (*) is displayed instead of data. If this occurs, return to the Form.Columns panel and increase the column's width.

11.6.10 Determining the Way Columns Are Used

Usage codes tell QMF how to use a column. The simplest use for a column of data is to present it as displayed or printed; the usage code for that is blank. If you do not want the column to display in your report, use **OMIT** as the usage code.

A common way to use data in a column of numbers is add its values. The usage code for adding is **SUM**, which displays the column and adds the values, showing the total number result at the bottom of the column.

1. Press the **Form** key to return to the Form.Columns panel.
2. Type **SUM** under the USAGE column for the LOAN_AMT and OUT_PRIN column headings to add their column values together.
3. Press the **Report** key to see how the usage code affected the report.
4. Type **BOTTOM** and press **Enter** to advance to the end of the report and view the column totals.

A revised report displaying totals for LOAN_AMT and OUT_PRIN is shown in Figure 11–85.

REPORT				LINE 1043	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
899986	023260	37000318	RP	1992-10-01	\$2,300.00	\$0.00
899986	023260	37000316	RP	1992-06-01	\$1,950.00	\$0.00
899986	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00
899986	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00
899986	024605	122001641	RP	1990-03-01	\$7,500.00	\$0.00
899986	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00
899986	024618	37001289	RP	1991-01-01	\$5,000.00	\$0.00
899986	024714	122002531	RP	1988-12-01	\$2,500.00	\$0.00
899986	024714	122002531	RP	1986-05-01	\$2,500.00	\$0.00
899986	024984	37000321	RP	1992-11-01	\$2,625.00	\$0.00
					=====	=====
					\$2,877,596.00	\$0.00
*** END ***						
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, REPORT is displayed.						
COMMAND ==>						
SCROLL ==> PAGE						

Figure 11-85, Report Panel Displaying Totals

SUM is an aggregating usage code. Some other aggregating usage codes include the following:

Usage	Results In
AVERAGE (AV)	The average of the values in the column.
CALCid (CAid)	The evaluation of a report calculation specified for a numeric ID on the Form.Calc panel.
COUNT (CO)	A count of the values in the column that are not null.
CSUM (CS)	The cumulative total for each line of the report.
MAXIMUM (MA)	The largest value in the column.
MINIMUM (MI)	The smallest value in the column.
PCT (P)	The percentage each line represents of the total for the column in the report.

For a listing of all QMF usage codes, refer to the QMF Help panels.

The minimum abbreviations for the usage codes are shown in parentheses. If you type the abbreviation, QMF fills in the rest when you press **Enter**. Of the codes listed, AVERAGE, CSUM, PCT, and SUM are used for numeric data only. CALCid, COUNT, MAXIMUM, and MINIMUM can also be used for character data.

11.6.11 Breaking Your Report into Smaller Sections

Dividing your report into smaller, more readable sections makes it easier to use and understand. Use the Form.Columns panel to specify those section breaks.

11.6.11.1 Using Break Usage Codes

To include subtotals in the report, you need to tell QMF where to make the breaks in the report. In this example, breaks are used to divide the report after each Lender code and to provide a Lender Code Total. The rows are sorted by Lender Number. The query retrieves rows from the table in this order.

The ordering of data is crucial in a report. If the data is sorted by Lender Code, you can view Lender totals by using the BREAK usage code. The BREAK code tells QMF to “Show a result (a lender total) whenever the value of the Lender Code column changes.”

When a subtotal is shown each time the value in the Lender Code column changes, it is called a control break. The column in which the control break occurs is called the control column. The usage code for such a control column is BREAKn (where n is any number from 1 through 6). This example presents only the level 1 control break.

To display LENDER totals by using BREAK1 as the usage code for the LEN column:

1. Press the **Form** key to display the Form.Columns panel.
2. Type **BREAK1** as the usage code for the LEN column.
3. Press the **Report** key to view the revised report shown in Figure 11–86.

REPORT				LINE 1	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
800241	001610	547009986	RP	1992-08-21	\$4,000.00	\$0.00
				*	\$4,000.00	\$0.00
899986	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
	001002	122002066	RP	1990-12-01	\$1,200.00	\$0.00
	001005	207003128	RP	1992-11-01	\$1,479.00	\$0.00
	001005	207003128	RP	1992-11-01	\$1,147.00	\$0.00
	001020	37001495	RP	1988-10-01	\$2,500.00	\$0.00
	001020	37001495	RP	1988-10-01	\$2,275.00	\$0.00
	001033	37000489	RP	1992-12-01	\$2,500.00	\$0.00
	001033	37000515	RP	1990-01-01	\$4,000.00	\$0.00
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, REPORT is displayed.				SCROLL ==> PAGE		
COMMAND ==>						

Figure 11–86, Report Panel Displaying Results of BREAK Command

11.6.11.2 Default Break Text on Form.Main

The “Default Break Text?” prompt lets you change the default text that displays at each break in your report. If you do not specify any footing text for your break levels, the default break text is an asterisk. To suppress display of the asterisks:

1. Type **SHOW FORM.MAIN** at the Command prompt of your report.
2. Press **Enter**.
3. The Form.Main panel displays (Figure 11–87).

FORM.MAIN		ED0.STUDENT_F		MODIFIED			
COLUMNS:		Total Width of Report Columns: 77					
NUM	COLUMN HEADING	USAGE	INDENT	WIDTH	EDIT	SEQ	
1	LOAN_MAT		2	10	TDY-	5	
2	ST		4	2	C	4	
3	LOAN_AMT	SUM	2	15	D2	6	
4	OUT_PRIN	SUM	2	11	D2	7	
5	LEN	BREAK1	2	6	C	1	
PAGE: HEADING ==>							
FOOTING ==>							
FINAL: TEXT ==>							
BREAK1: NEW PAGE FOR BREAK? ==> NO							
FOOTING ==>							
BREAK2: NEW PAGE FOR BREAK? ==> NO							
FOOTING ==>							
OPTIONS: OUTLINE? ==> YES							
DEFAULT BREAK TEXT? ==> YES							
1=Help 2=Check 3=End 4=Show 5=Chart 6=Query							
7=Backward 8=Forward 9= 10=Insert 11=Delete 12=Report							
OK, FORM.MAIN is shown.							
COMMAND ==>							
SCROLL ==> PAGE							

Figure 11–87, Form.Main Panel

4. Type **NO** at the “Default Break Text” prompt on the Form.Main panel.

11.6.11.3 Entering Break Text

The Form.Main panel lets you specify whether to begin a new page for each break level, and enter explanatory text for these break results. For this report, assume you do not want a new page for the break, but you do want to add explanatory text to the break totals. The break text is displayed whenever the value in the control column changes.

To identify each total with the line LENDER TOTALS, for BREAK1:

1. Type **NO** at the “New Page For Break?” prompt.

2. Type **LENDER TOTALS** at the “Footing” prompt.
3. Press the **Report** key.

The revised report is displayed (Figure 11–88). Notice the format changes. The text is displayed at each subtotal in the report.

REPORT				LINE 1	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
800241	001610	547009986	RP	1992-08-21	\$4,000.00	\$0.00
LENDER TOTALS					\$4,000.00	\$0.00
899986	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
	001002	122002066	RP	1990-12-01	\$1,200.00	\$0.00
	001005	207003128	RP	1992-11-01	\$1,479.00	\$0.00
	001005	207003128	RP	1992-11-01	\$1,147.00	\$0.00
	001020	37001495	RP	1988-10-01	\$2,500.00	\$0.00
	001020	37001495	RP	1988-10-01	\$2,275.00	\$0.00
	001033	37000489	RP	1992-12-01	\$2,500.00	\$0.00
	001033	37000515	RP	1990-01-01	\$4,000.00	\$0.00
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, REPORT is displayed.						
COMMAND ==>						SCROLL ==> PAGE

Figure 11–88, Report Panel Displayed with LENDER TOTALS

4. Press the **FORM** key to return to Form.Main panel.

If you want something a little fancier, use a variable Lender code to display in the control break text. For that, enter the special symbol “&5”, which means “the current value in column 5,” the LEN column. Whenever the computer displays the control break text that includes “&5”, it substitutes for “&5” the latest value in column 5. For example, the first instance of break text in this report would be LENDER 800241 TOTALS.

To create this kind of break text:

1. Type **NO** at the BREAK1 “New Page For Break?” prompt.
2. Type **LENDER &5 TOTALS** at the BREAK1 “Footing” prompt.

Remember, you can use the **Forward** key on the Form.Main panel if you want to view other columns.

3. Press the **Report** key.
4. The revised report is displayed (Figure 11–89). Notice the change to the subtotal text. The Lender Code is now displayed in the break text.

REPORT				LINE 1	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN
800241	001610	547009986	RP	1992-08-21	\$4,000.00	\$0.00
LENDER 800241 TOTALS					\$4,000.00	\$0.00
899986	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00
	001002	122002066	RP	1990-12-01	\$1,200.00	\$0.00
	001005	207003128	RP	1992-11-01	\$1,479.00	\$0.00
	001005	207003128	RP	1992-11-01	\$1,147.00	\$0.00
	001020	37001495	RP	1988-10-01	\$2,500.00	\$0.00
	001020	37001495	RP	1988-10-01	\$2,275.00	\$0.00
	001033	37000489	RP	1992-12-01	\$2,500.00	\$0.00
	001033	37000515	RP	1990-01-01	\$4,000.00	\$0.00
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, REPORT is displayed.						
COMMAND ==>						SCROLL ==> PAGE

Figure 11-89, Report Panel Displaying Lender Code in BREAK Text

- Press the **Form** key to return to the Form.Main panel.

11.6.12 Page Headings and Footings and Final Text

11.6.12.1 Headings and Footings

Many times it is necessary for final output reports to include page heading or page footing text. You can specify either, both, or neither.

Use these areas on the Form.Main panel:

PAGE: HEADING ==>
 FOOTING ==>

Heading and footing text lines display at the top or bottom of each page of a printed report, or before the first and after the last line of a report displayed at a PC.

- Press the **Form** key to return to the Form.Main panel.

To add page heading and footing text to your report, follow these steps on the Form.Main panel:

- Type **OUTSTANDING PRINCIPLE < 100** at the Heading prompt.
- Type **COMPANY CONFIDENTIAL** at the Footing prompt.

If you want more than a single heading or footing in your report, or if you want to adjust the alignment of the heading and footing, use the Form.Page panel. Page heading and footing text entered on the Form.Main panel is also displayed on the Form.Page panel. The Form.Page panel lets you:

- Specify the text for the page heading and footing lines on your report.
- Control the placement of the page heading and footing (CENTER, LEFT, RIGHT, or APPEND).
- Indicate the number of blank lines that are displayed before and after page heading and footing text.

To create more text using the Form.Page panel:

1. Type **SHOW FORM.PAGE** at the Command prompt.
2. Press **Enter**. The Form.Page panel displays (Figure 11–90).

FORM.PAGE		ED0.STUDENT_F	MODIFIED
Blank Lines Before Heading ==> 0		Blank Lines After Heading ==> 2	
LINE	ALIGN	PAGE	HEADING TEXT
----	-----	-----1-----2-----3-----4-----5-----	
1	CENTER	OUTSTANDING PRINCIPLE <100	
2	CENTER		
3	CENTER		
4	CENTER		
*** END ***			
Blank Lines Before Footing ==> 2		Blank Lines After Footing ==> 0	
LINE	ALIGN	PAGE	FOOTING TEXT
----	-----	-----1-----2-----3-----4-----5-----	
1	CENTER	COMPANY CONFIDENTIAL	
2	CENTER		
3	CENTER		
4	CENTER		
*** END ***			
1=Help 2=Check 3=End 4=Show 5=Chart 6=Query 7=Backward 8=Forward 9= 10=Insert 11=Delete 12=Report OK, FORM.PAGE is shown. COMMAND ==>			
			SCROLL ==> PAGE

Figure 11–90, Form.Page Panel

3. Type **SHOW FORM.MAIN** at the Command prompt.
4. Press **Enter**. You are returned to the Form.Main panel.

11.6.12.2 Final Text

Final Text is text that you want displayed at the end of the report; such as descriptive final summary data. Use the following procedure to create Final Text from the Form.Main panel:

1. Type **TOTALS** at the "Text" prompt.
2. Press the **Report** key.
3. The revised report is displayed (Figure 11–91). Notice the change to the heading.

REPORT							LINE 1	POS 1	79
OUTSTANDING PRINCIPLE <100									
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN			
800241	001610	547009986	RP	1992-08-21	\$4,000.00	\$0.00			
LENDER 800241 TOTALS					\$4,000.00	\$0.00			
899986	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00			
	001002	122001636	RP	1988-07-01	\$2,500.00	\$0.00			
	001002	122002066	RP	1990-12-01	\$1,200.00	\$0.00			
	001005	207003128	RP	1992-11-01	\$1,479.00	\$0.00			
	001005	207003128	RP	1992-11-01	\$1,147.00	\$0.00			
	001020	37001495	RP	1988-10-01	\$2,500.00	\$0.00			
	001020	37001495	RP	1988-10-01	\$2,275.00	\$0.00			
	001033	37000489	RP	1992-12-01	\$2,500.00	\$0.00			
1=Help 2= 3=End 4=Print 5=Chart 6=Query									
7=Backward 8=Forward 9=Form 10=Left 11=Right 12=									
OK, REPORT is displayed.									
COMMAND ==>							SCROLL ==>	PAGE	

Figure 11–91, Report Panel with Heading Displayed

4. Press the **Forward** key several times to display the final total line and footing as shown in Figure 11–92.

REPORT							LINE 1052	POS 1	79
LEN	SCH CODE	STU NO	ST	LOAN MAT	LOAN AMT	OUT PRIN			
899986	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00			
	024605	122001641	RP	1989-03-01	\$5,000.00	\$0.00			
	024618	37001289	RP	1991-01-01	\$5,000.00	\$0.00			
	024714	122002531	RP	1988-12-01	\$2,500.00	\$0.00			
	024714	122002531	RP	1986-05-01	\$2,500.00	\$0.00			
	024984	37000321	RP	1992-11-01	\$2,625.00	\$0.00			
LENDER 899986 TOTALS					\$2,877,596.00	\$0.00			
TOTALS					\$2,881,596.00	\$0.00			
COMPANY CONFIDENTIAL									
*** END ***									
1=Help 2= 3=End 4=Print 5=Chart 6=Query									
7=Backward 8=Forward 9=Form 10=Left 11=Right 12=									
OK, FORWARD performed. Please proceed.									
COMMAND ==>							SCROLL ==>	PAGE	

Figure 11–92, Report Panel Displaying Footing and Final Totals

- Press the **Form** key to return to Form.Main panel.

11.6.13 Outline Option on Form.Main

The OUTLINE option on the Form.Main panel lets you suppress repeated values in control columns. If your report has control breaks, notice the value in the control break column is not repeated for each line in the report (see Figure 11–91, Figure 11–92, and Figure 11–93). If the response after the “Outline” prompt is **YES** on the Form.Main panel, the value is displayed only once. If you typed **NO** at this prompt, the value is repeated for each row.

FORM.MAIN		ED0.STUDENT_F		MODIFIED		
COLUMNS:		Total Width of Report Columns: 79				
NUM	COLUMN HEADING	USAGE	INDENT	WIDTH	EDIT	SEQ
1	LOAN_MAT		2	10	TDY-	5
2	ST		4	2	C	4
3	LOAN_AMT	SUM	2	15	D2	6
4	OUT_PRIN	SUM	2	11	D2	7
5	LEN	BREAK1	2	6	C	1
PAGE: HEADING ==> OUTSTANDING PRINCIPLE <100						
FOOTING ==> COMPANY CONFIDENTIAL						
FINAL: TEXT ==> TOTALS						
BREAK1: NEW PAGE FOR BREAK? ==> NO						
FOOTING ==> LENDER &5 TOTALS						
BREAK2: NEW PAGE FOR BREAK? ==> NO						
FOOTING ==>						
OPTIONS: OUTLINE? ==> YES			DEFAULT BREAK TEXT? ==> NO			
1=Help	2=Check	3=End	4=Show	5=Chart	6=Query	
7=Backward	8=Forward	9=	10=Insert	11=Delete	12=Report	
OK, FORM is displayed.						
COMMAND ==>				SCROLL ==> PAGE		

Figure 11–93, Form.Main Panel

Leave the default value of YES for this report. Otherwise, your report lists the LENDER number beside each row in the report.

You have now finished making the necessary modifications to the form.

11.6.14 Saving a Form

After you have created the form, you may want to save it for later use. If you forget to save the form and run another query, QMF does not keep a copy of your form to use later. The form is lost and replaced by the default form from the query you last ran.


```

FORM.MAIN          ED0.STUDENT_F          MODIFIED
+-----+-----+-----+
|                                     SAVE Command Prompt                                     |
|                                                                                             1  to 14 of 14                             |
| SAVE FORM                                                                                   |
| AS                                                                                           |
| Name      (                                     ) +                                         |
|           Enter the name the object will have in the database.                         |
| Confirm  ( YES          ) Display the confirmation panel before replacing                 |
|           an object in the database? YES or NO.                                         |
| Share    (               ) Share this object? YES or NO. Leave this field              |
|           blank to keep the existing share value.                                       |
| Comment  (                                     )                                         |
|           You can enter a comment to be saved with the object.                         |
| Language ( ENGLISH ) Target language of the FORM.                                       |
|           ENGLISH - Save the FORM in English.                                           |
|           SESSION - Save the FORM in the session                                       |
|                   language.                                                             |
+-----+-----+-----+
| F1=Help  F3=End  F4=List  F7=Backward  F8=Forward                                     |
+-----+-----+-----+

Please follow the directions on the command prompt panel.

```

11.6.15.1 RUN Command with No Options

Previously, we ran a saved query using the RUN command. When we ran the query, QMF used the default Form to display the results.

1. Type **RUN FORMS_Q** at the Command prompt.
2. Press **Enter**.

Notice the saved query is displayed and the data is returned in the default report format.

11.6.15.2 DISPLAY Command after the RUN Command

QMF allows you to specify the format to use in the report after the query is run. You can use the **DISPLAY** command to recall a previously saved form.

1. Type **DISPLAY FORMS_F** at the Command prompt or use the short form **DI FORMS_F**.
2. Press **Enter**.
3. Press the **Report** key.

The report is now in the saved form format.

11.6.15.3 RUN Command with FORM Option

It is possible to run the query and display a saved form in one step by using the **RUN** command. The command syntax is **RUN** followed by queryname (**FORM** = formname).

1. Type **RUN FORMS_Q (FORM = FORMS_F** or **(F=FORMS_F** at the “Command” prompt.
2. Press **Enter**.
3. Notice the saved query has been run, and the data is returned using the saved form rather than the default report format.

11.6.16 Using the LIST Command

You have used the **LIST QUERIES** command to view a list of all the queries you have saved in QMF. You can also use the **LIST** command to list all the forms you have saved. Just replace the word “queries” with “forms” (i.e., **LIST FORMS**). You can also use the **LIST** command to display both queries and forms in the same list.

1. Type **LIST ALL** at the “Command” prompt.
2. Press **Enter**.
3. A list of every QMF item you have saved is displayed (Figure 11–95). The **TYPE** column tells you whether the saved object is a Table, Query, or Form.

Object List			
Action	Name	Owner	Type
1 to 4 of 4			
	STUDENT_Q	EDO	QUERY
	STUDENT_F	EDO	FORM
	STATUS_Q	EDO	QUERY
	SCHCODE_Q	EDO	QUERY
F1=Help F4=Command F5=Describe F6=Refresh F7=Backward F8=Forward			
F9=Clear F10=Comments F11=Sort F12=Cancel			
OK, your database object list is displayed.			

Figure 11–95, Object List from LIST ALL Command

4. Press the **Cancel** key to return to the report.

To list everything beginning with ‘T’:

1. Type **LIST (NAME=T%** at the Command prompt.
2. Press **Enter**.
3. Press the **Cancel** key to return to the report.

To list other users shared queries:

1. Type **LIST QUERIES (OWNER=ALL**, or use the short form **LIST QUERIES (O-ALL**.
2. Type **LIST QUERIES (OWNER=USERID**.

11.6.17 Printing a Report

QMF can send your QMF report to a printer, RMDS, diskette, magnetic tape, SAIG (formerly Title IV WAN), or a dataset for downloading to a PC.

QMF reports can be routed to the designated output any one of three ways:

1. Press the **Print** key from the Report panel.
2. Select output destination by typing an ‘S’ beside the destination chosen.

- Type **QPRINT** at the Report panel's "Command" prompt or through a procedure.

Or, you can use the BATCH facility to print a QMF report as described in Section 11.7.11.3.

11.6.17.1 PRINT Key

While the report is displayed on the screen, press the **Print** key. QMF displays the Select Output Destination panel (Figure 11–96).

```

Menu Options View Utilities Compilers Help

DSLIS - Data Sets Matching NSLSDS.PR79*          Data Set - Browsed
-----
----- SELECT OUTPUT DESTINATION ----- Row 1 to 8 of 8
COMMAND==>                                     SCROLL==> PAGE

REPORT ID      ==>                                03/29 15:31
REMOTE PRINTER ==>

S PRINTER  DEF  DESCRIPTION
. WAN      SEND TO T4 WAN MAILBOX
. DISKETTE OUTPUT TO PC DISKETTE
. DOWNLOAD DOWNLOAD TO PC FILE
. HP683    NSLDS CUSTOMER SERVICE CENTER
. L3800    VIRTUAL DATA CENTER HIGH SPEED PRINTER
. RMDS     ON-LINE REPORT DISPLAY
. RMT201   FALLS CHURCH DEVELOPMENT OFFICE
. TAPE     OUTPUT TO MAGNETIC TAPE
***** Bottom of data *****

F1=HELP      F2=SPLIT    F3=END      F4=QPRINT   F5=        F6=
F7=UP        F8=DOWN     F9=SWAP    F10=        F11=       F12=RETRIEVE

```

Figure 11–96, Select Output Destination Panel

11.6.17.2 Output Destination Panel

The Select Output Destination panel displays a list of destinations. Those destinations are defined by User ID and vary from user to user, so you may not be able to send a report to all the destinations described below.

- RMDS**—Report Management and Distribution System (RMDS) is an IBM product that provides an intermediate area to view reports before they are routed to a destination. RMDS identifies each report by its report identifier. A report is routed to RMDS by specifying the RMDS print destination and placing the report identifier in the FORM field on the output menu from CICS or QMF. From RMDS, a user can send a copy of a report to any of the other valid report destinations. Except for printer output, any report routed out of RMDS is placed in a dataset for further processing. RMDS is accessible from a TSO or VTAM session.

- **PC Download**—Output to be downloading to a user’s PC is stored in separate datasets on the NSLDS mainframe. Those data sets are differentiated from other distribution datasets by a naming standard, which includes the UserID in the data set name. When users download from Personal Communications/3270 or Crosstalk for Windows, they specify the data set name as the source for the download. These files begin with NSLPC.userid.
- **Diskette**—Each report or extract to be distributed on diskette is stored in a separate data set on the mainframe. A naming standard indicates which datasets are to be copied onto diskette. At regular intervals, a diskette distribution process is executed in batch to collect the data sets and transfer them to a dedicated PC. The Output Log table is updated to reflect that the output has been sent to the PC. This diskette distribution process uses the UserID, which is imbedded in the dataset name, to read the user name and mailing address from the User Profile table. The name and address are placed at the beginning of the data set before it is transferred to the PC.
- **Magnetic Tape**—The processing for magnetic tape distribution is very similar to the processing for diskettes. A naming standard that requires that the UserID of the requester be included in the database name identifies which data sets are to be sent to tape. For each data set, a distribution process reads the “User Profile” table and sends the mailing information to a printer for mailing labels. After the data set is copied to tape and the tape is mailed, a CICS transaction is used to update the “Output Log” table.

The REPORT ID is a four-character identifier based on organization; refer to Section 11.9 for a listing of valid identifiers. QMF prompts you to identify the report when it reaches the given destination. This is required, so you must enter a response.

1. Type a **valid identifier** at the “Report ID” prompt.
2. Select the desired destination by typing **S** beside the RMDS option.
3. Press **Enter**.

QMF displays the word “selected” to the right of the option denoting which destination was selected. The selection can be changed by typing **S** beside a different destination and pressing **Enter**. RMDS sends the report to the NSLDS Data Center for printing.

After selecting the destination:

1. Type **QPRINT** at the “Command” prompt.
2. Press **Enter**.
3. Press **End (F3)** from the Destination panel, to terminate the output process.
4. Press **Help (F1)** to receive online HELP.

5. Press the **End** key to exit the Output Destination panel.

11.6.17.3 QPRINT Command

Another way to produce output from the Report panel is to use the QPRINT command.

- **QPRINT**—Displays the Output Destination panel just as pressing the REPORT key does.
- **QPRINT dest rptid**—Bypasses the Select Output Destination panel and sends the output directly to the desired destination. In this example, replace DEST with the desired destination of the output. RPTID should be replaced with the REPORT ID.

To produce output from the Report panel, follow these steps:

1. Type **QPRINT RMDS XXXX** at the Command prompt on the Report panel.

Always use the command QPRINT rather than PRINT. The PRINT command does not allow you to select a destination and report ID, but QPRINT does.

2. Press **Enter**.

11.7 Advanced SQL Queries

11.7.1 Summarizing Data

There are times when you do not need to view all detail records on your report but only summary data. You can create summary reports in QMF using one of two options:

- The QMF Form panels
- The SQL Query panel

You may want to select the SQL query method if you are summarizing a large amount of data. For example, if you have written a query that selects 20,000 rows and you want to summarize these rows into a smaller report, it would be better to select just the summarized rows rather than all 20,000 rows and then summarize the data in the form.

11.7.2 Using Forms

To create a summary report from the QMF Form panels, use Form.Main's USAGE column.

1. Press the **Query** key.
2. Type **RESET QUERY** at the Command prompt.
3. Press **Enter**.
4. Enter the following query at the top of the screen:

```

SELECT  CURR_LEN_CODE, SCH_CODE, AMT
FROM    LOAN
ORDER BY CURR_LEN_CODE, SCH_CODE

```

We are going to create subtotals in this report based on lender code. Remember, the order is very important when you plan to use the subtotal option in a report. For more information on subtotalling, refer to Section 11.6.11, *Breaking your Report into Smaller Sections*.

5. Press the **Run** key to produce your default report.
6. Press the **Forward** key to view other Lender codes (Figure 11–96).

REPORT			LINE 19	POS 1	79
CURR					
LEN	SCH				
CODE	CODE	AMT			
++-----++-----+-----+-----+-----+-----+					
800001	001002	7040			
800001	001002	7040			
800001	001002	7040			
800001	001328	25000			
800001	001328	25000			
800001	001328	100			
800004	001002	7040			
800004	001002	7040			
800004	001002	7040			
800241	001610	4000			
800241	001610	3873			
800241	020988	17418			
801523	001205	5000			
801523	001326	2625			
1=Help 2= 3=End 4=Print 5=Chart 6=Query					
7=Backward 8=Forward 9=Form 10=Left 11=Right 12=					
OK, FORWARD performed. Please proceed.					
COMMAND ==>			SCROLL ==> PAGE		

Figure 11–97, Report Panel Displaying Results of the Default Report

11.7.2.1 Summarizing with BREAK

To change the default report options provided by QMF, display the Form.Main panel:

1. Press the **Form** key.

Type the specified USAGE codes in the following columns:

2. Type **BREAK** in the CURR_LEN_CODE column.

3. Type **AVG** in the AMT column.

The BREAK usage code displays a subtotal whenever the value of the control column changes. The AVG usage code displays the average for the specified column at the end of the report and for each value within the BREAK column.

4. Press the **Report** key to display the revised report.

5. Press the **Forward** key twice to view the effect of breaks and average data (Figure 11–98).

REPORT			LINE 33	POS 1	79
CURR LEN CODE	SCH CODE	AMT			
+++++					
800004	001002	7040			
	*	7040			
800241	001610	4000			
	001610	3873			
	020988	17418			
	*	8430			
801523	001205	5000			
	001326	2625			
	001328	2500			
	001431	2500			
1=Help			2=	3=End	4=Print
7=Backward			8=Forward	9=Form	10=Left
5=Chart			6=Query		
11=Right			12=		
OK, FORWARD performed. Please proceed.					
COMMAND ==>			SCROLL ==> PAGE		

Figure 11–98, Report Panel Displaying Results of Break

The report now displays every amount the query selected as well as average amount for each lender. You may further summarize data in your report so only the rows with the lenders' average amounts are displayed. Eliminating details from your current report is described below.

11.7.2.2 Summarizing with GROUP

To return to the Form.Main panel:

1. Press the **Form** key.

2. Type **USAGE CODE GROUP** in the CURR_LEN_CODE column.

Subtotals are computed when the values in the column specify a change. The GROUP usage code specifies which columns are selected when the subtotals are computed. The GROUP usage code differs from BREAK. BREAK displays all detail values and adds a summary row for each value in the report. GROUP summarizes all the like values into one row and displays only one row per value in the report.

3. Press the **Report** key to view your revised report.

The report is now much smaller and shows only the subtotal lines. The School code detail records have been eliminated from the report.

11.7.3 Using Queries

We have described how you can summarize report data using a QMF form. Now our discussion moves on to how to use GROUP and AVG in a SQL query just as they have been used in the QMF form.

1. Press the **Query** key to display the SQL Query panel.
2. Edit the query as shown:

```
SELECT  CURR_LEN_CODE, AVG(AMT)
FROM    LOAN
GROUP BY CURR_LEN_CODE
ORDER BY CURR_LEN_CODE
```

Average (AVG) is a column function. A column function produces a single value for a group of rows. Average calculates the average of the values in the requested column. The requested column has to be numeric data for AVG to work. Other column functions include:

- **MAX**—Finds the maximum value in a particular column. Applies to all data types.
- **MIN**—Finds the minimum value in a particular column. Applies to all data types.
- **SUM**—Finds the sum of the values in a column. Applies only to numeric data types.
- **COUNT**—Counts the number of rows, which satisfy a search condition. Applies to all data types.

A query can have column functions (SUM, AVG, MAX, MIN, and COUNT) applied to groups of rows that have matching values in a column or columns. Rows are GROUPED BY matching values in a column. When a query uses the grouping feature, it returns only one result row for each group. GROUP BY must be used anytime you use a column function with other columns in the SELECT. The columns in the GROUP BY statement should be every column in the SELECT

statement not having a function performed on it (that is, SUM, MAX, MIN, AVG). The GROUP BY statement should follow the WHERE statement, if one exists, and precede the ORDER BY statement, if one exists. The ORDER BY statement should always come last in a query.

3. Press the **Run** key to retrieve the data (Figure 11–99).

REPORT		LINE 1	POS 1	79
CURR LEN CODE	COL1			
-----	-----			
	3800			
800001	10662			
800004	7040			
800241	8430			
801523	2362			
801871	3732			
802566	2500			
802567	2228			
802598	2277			
802599	2564			
802600	1500			
802601	2655			
1=Help	2=	3=End	4=Print	5=Chart
7=Backward	8=Forward	9=Form	10=Left	11=Right
6=Query				
12=				
OK, this is the REPORT from your RUN command.				
COMMAND ==>				
SCROLL ==> PAGE				

Figure 11–99, Report Panel Displaying Results of Group and AVG

The data is already grouped and averaged before any changes are made to the form. This is because we have requested average amount in the query. The report now resembles the one created using the QMF Form panels for summarizing data.

11.7.4 Using Substitution Variables

Substitution variables let you use the same query to retrieve different results by supplying different values for the substitute variables. To retrieve a different set of data, you do not need to rewrite the query, just substitute a different value for the substitution variable in the query. A substitution variable can be used in any statement of the query and can represent anything that can be written into a query, including column names, search conditions and specific values.

1. Type **DISPLAY FORMS_Q** at the Command prompt.
2. Press **Enter**.

Any query previously on the SQL Query panel has been replaced. Remember, if you did not save the former query before it was replaced, it cannot be retrieved.

3. Enter the following query that uses a substitution variable in the WHERE statement:

```

SELECT  CURR_MAT_DT, CURR_LOAN_STAT, AMT,
OUT_PRIN_BAL,
        CURR_LEN_CODE, SCH_CODE, STU_NO
FROM    LOAN
WHERE   CURR_LEN_CODE = &LEN
        AND CURR_LOAN_STAT <> 'PF'
        AND AMT > 1000
        AND OUT_PRIN_BAL BETWEEN 0 AND 100
ORDER BY CURR_LEN_CODE, SCH_CODE

```

The WHERE statement includes &LEN as a substitution variable. When this query runs, the Run Command Prompt panel displays, and what you enter at the prompt replaces &LEN in your query. Substitution variable names can be no longer than 18 characters, and the first character must be an ampersand (&). Although you are not required to match the column names, this makes the prompts easier to use.

4. Press the **Run** key to run the query.
5. The prompt panel displays (Figure 11–100).

```
SQL QUERY                                MODIFIED   LINE    1
```

```
+-----+-----+
```

```
|                                     |
```

```
|          RUN Command Prompt - Values of Variables                      |
```

```
|                                     |
```

```
| Your RUN command runs a query or procedure with variables that need     |
```

```
| values. Fill in a value for each variable named below:                   |
```

```
|                                     |
```

```
|                               1      to 10 of 10                          |
```

```
|&LEN                             |
```

```
|                                     |
```

```
|                                     |
```

```
|                                     |
```

```
|                                     |
```

```
|                                     |
```

```
|                                     |
```

```
|                                     |
```

```
+-----+-----+
```

```
| F1=Help  F3=End  F7=Backward  F8=Forward                              |
```

```
+-----+-----+
```

```
Please give a value for each variable name.
```

Figure 11-100, RUN Command Prompt Panel

On the prompt screen, enter the Lender Code you want the query to select. The Lender Code is then returned to the query to replace &LEN. If you want to select Lender Code 899986:

6. Type '899986' to the right of &LEN.

Since the Lender Code column type is a character, you must enclose the Lender code in single quotes, for example, '899986'.

7. Press **Enter**.

8. The report is displayed on the screen (Figure 11–101).

REPORT			LINE 1	POS 1	79	
CURR MAT DT	CURR LOAN STAT	AMT	OUT PRIN BAL	CURR LEN CODE	SCH CODE	STU NO
1988-07-01	RP	2500	0	899986	001002	122001636
1988-07-01	RP	2500	0	899986	001002	122001636
1990-12-01	RP	1200	0	899986	001002	122002066
1992-11-01	RP	1479	0	899986	001005	207003128
1992-11-01	RP	1147	0	899986	001005	207003128
1988-10-01	RP	2275	0	899986	001020	37001495
1988-10-01	RP	2500	0	899986	001020	37001495
1988-12-01	DU	2500	0	899986	001020	122002546
1988-12-01	DU	1137	0	899986	001020	122002546
1989-01-01	DU	2500	0	899986	001033	37000065
1=Help	2=	3=End	4=Print	5=Chart	6=Query	
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=	
OK, this is the REPORT from your RUN command.						
COMMAND ==>						SCROLL ==> PAGE

Figure 11–101, Report Panel Displaying Results of Substitution Variables

The number 899986 is substituted in the report when the query is run.

11.7.5 Selecting on Part of a Value

To select data when only part of a value is known, use LIKE in the WHERE statement with a symbol for the unknown data. The symbols to use are:

- **% (Percent Sign)**—Stands for “string of zero or more characters.”
- **_ (Underscore)**—Stands for “any single character.” Use more than one underscore in succession to represent an exact number of missing characters.

1. Type **RESET QUERY** at the Command prompt.
2. Press **Enter**.
3. Type this sample query at the top of the screen:

```
SELECT NM
FROM SCH
WHERE NM LIKE '%SOUTH%'
```

This query tells DB2, “Show all the school names that have the letters SOUTH anywhere within the name.”

4. Press the **Run** key to produce the report (Figure 11–102).

REPORT	LINE 1	POS 1	79
NM			

BIRMINGHAM SOUTHERN COLG			
ALABAMA SOUTHERN CMNTY COLG			
SOUTHERN BENEDICTINE COLG			
SOUTHEASTERN BIBLE COLLEGE			
SOUTHERN UNION STATE JUNIOR COLG			
UNIV OF SOUTH ALABAMA			
UNIV OF ALASKA SOUTHEAST			
SOUTHERN ARKANSAS UNIV			
SOUTHERN CALIFORNIA COLG OF OPTOMETRY			
SOUTHERN CALIFORNIA COLG			
SOUTHWESTERN COLG			
SOUTHWESTERN UNIV SCHOOL OF LAW			
1=Help	2=	3=End	4=Print
5=Chart	6=Query		
7=Backward	8=Forward	9=Form	10=Left
11=Right	12=		
OK, this is the REPORT from your RUN command.			
COMMAND ==>		SCROLL ==>	PAGE

Figure 11–102, Report Panel Displaying Results of LIKE

- To select any name beginning with SOUTH, type:

```
WHERE NM LIKE 'SOUTH%'
```

You can use % more than once in an expression, for example:

```
WHERE NM LIKE '%UNI%SOUTH%'
```

This expression finds every name that has a UNI and a SOUTH (in that order).

- Change the query to the following:

```
SELECT  NM
FROM    SCH
WHERE   NM LIKE '__OU%'
```

The line in '__OU%' contains two underscores.

This sample statement tells DB2, “Show all the school names that have OU in the third and fourth positions.”

- Press the **Run** key to produce the report (Figure 11–103).

REPORT	LINE 1	POS 1	79
NM			

SIoux EMPIRE COLG			
CLOUD COUNTY CMNTY COLG			
DYOUVILLE COLG			
SIoux FALLS COLG			
STOUT STATE UNIV WILLIAMSON			
STOUDER MEM HOSP SCH OF XRAY TECH			
SIoux VALLEY HOSPITAL SCHL OF RADIOLOGIC TECHLGY			
CROUSE IRVING MEMORIAL HOSPITAL SCHL OF NURSING			
SIoux VALLEY HOSPITAL SCHL OF NURSING			
GLOUCESTER COUNTY COLG			
SIoux FALLS AREA VOC TECH SCHOOL			
TROUTMANS COLG OF HAIRSTYLING			
SIoux CITY BARBER COLG			
STOUT STATE UNIV ALL CAMPUSES			
1=Help	2=	3=End	4=Print
5=Chart	6=Query		
7=Backward	8=Forward	9=Form	10=Left
11=Right	12=		
OK, this is the REPORT from your RUN command.			
COMMAND ==>			SCROLL ==> PAGE

Figure 11–103, Report Panel with School Names with OU in the Third and Fourth Positions

11.7.6 Selecting Multiple Tables and Joining Columns

To select data from two or more tables, you must link the tables together (join them) on columns that contain the same kind of information. There must be some overlap of information, some common ground. For example, assume you need the loan number, the current maturity date, and the loan amount from the LOAN table; the student's first and last name from the STU table; and the school name from the SCH table. The STU_NO column in the LOAN table and the NO column in the STU table both contain student numbers. The SCH_CODE column in the LOAN table and the CODE column in the SCH table also contain school numbers. You can join the STU, LOAN, and SCH tables on these columns.

1. To select these tables, type the following:

```
SELECT  A.NO, CURR_MAT_DT, AMT,
        CURR_FST, CURR_LST, NM
FROM    LOAN A, STUDENT B, SCH C
WHERE   A.STU_NO = B.NO AND A.SCH_CODE = C.CODE
AND     AMT > 1000
```

2. Press the **Run** key.
3. The query produces the report (Figure 11–104).

REPORT			LINE 1	POS 1	79
NO	CURR MAT DT	AMT	CURR FST	CURR LST	
211111111	1998-01-01	12000	CHARLES	JENKINS	
355555555	1998-01-01	12000	ABEL	JENKINS	
37001503	1989-06-28	2500	SHARON L	DARIAH	
777777777	1993-06-07	7040	JIM	JONES	
37001503	1989-06-28	1800	SHARON L	DARIAH	
122001636	1988-07-01	2500	ROSE MARIE	JNOFINN	
122001636	1988-07-01	2500	ROSE MARIE	JNOFINN	
122002066	1990-12-01	1200	JAMES	FORD	
122002066	1990-12-01	2000	JAMES	FORD	
122002157	1989-11-01	1500	CHARLES	ALEXIS	
171717171	1993-06-07	7040	JOHN	STONE	
200000310	1993-06-07	7040	STEVE	SMITH	
1=Help	2=	3=End	4=Print	5=Chart	6=Query
7=Backward	8=Forward	9=Form	10=Left	11=Right	12=
OK, this is the REPORT from your RUN command.					
COMMAND ==>				SCROLL ==> PAGE	

Figure 11–104, Report Panel Displaying Results of JOIN

- Press the **Right** key to scroll right to view the school name.

11.7.7 Using UNION to Merge Data from Two or More Tables

You can merge values from two or more tables into the same columns, but different rows, of the same report by using the UNION command.

Each query connected by UNION is executed to produce an answer set. Then, these answer sets are combined and duplicate rows are eliminated.

Merging data using UNION differs from joining data: When tables are merged, values are merged into different rows, but into the same columns. When tables are joined, values are merged into the same rows, but different columns.

The important thing to remember when using UNION is that you are interleaving the rows of the reports generated from two (or more) queries.

You can keep duplicates in the result of a UNION operation by specifying the optional keyword ALL after UNION. When UNION ALL is specified, redundant duplicate rows are not eliminated from the result. If you use an ORDER BY clause in a UNION operation, you need to use a column number after ORDER BY. Using a column name after ORDER BY is invalid.

You can use UNION between two SELECT statements if these conditions are satisfied:

- The two statements select the same number of columns.

- Corresponding columns selected by the two statements have the same data type and width and, for decimal data, the same number of decimal places.
- Corresponding columns either both allow null values, or both disallow them.

The lengths and data types of the columns named in the SELECT statement need only be comparable; that is, they must both be numeric, character, graphic, date, time, or timestamp values. The data types selected cannot be a mixture of these groups.

The following example selects similar columns from the GA and LENDER tables and merges them into one report.

To list the names of all guaranty agencies and all lenders in one report sorted alphabetically:

1. Type **RESET QUERY**.
2. Press **Enter**.
3. On the SQL Query panel, type:

```
SELECT NM, 'GA'  
FROM GA  
UNION  
  
SELECT NM, 'LENDER'  
FROM LEN
```

4. Press the **Run** key.

The portion of the example query that selects from GA also creates a column in the report with the constant GA in it. The portion of the query that selects from LENDER does the same with the constant LENDER (Figure 11–105).

REPORT	LINE 1	POS 1	79
NM	COL1		
-----	-----		
A B DICK COMPANY EMPLOYEES FEDERAL	LENDER		
A C E CREDIT UNION	LENDER		
A M EMPLOYEES CREDIT UNION INC	LENDER		
A P PARTS EMP F C U	LENDER		
A.E.A. FEDERAL CREDIT UNION	LENDER		
A&P - FARMER JACK CREDIT UNION	LENDER		
A-B CREDIT UNION OF MILWAUKEE	LENDER		
A-M COMMUNITY CREDIT UNION	LENDER		
AA FEDERAL CREDIT UNION	LENDER		
AAA EMPLOYEES FEDERAL CREDIT UNION	LENDER		
AAA FEDERAL CREDIT UNION	LENDER		
AAA LIFE INSURANCE CO	LENDER		
AAC CREDIT UNION	LENDER		
AAFES FEDERAL CREDIT UNION	LENDER		
1=Help	2=	3=End	4=Print
5=Chart	6=Query		
7=Backward	8=Forward	9=Form	10=Left
11=Right	12=		
OK, this is the REPORT from your RUN command.			
COMMAND ===>			
SCROLL ===> PAGE			

Figure 11-105, Report Panel Displaying Results of the UNION Command

11.7.8 Tablespace Request Procedures

There are times when you have to run multiple queries against a few columns and rows in a large table in the database. Rather than select from the entire table, you can create your own personal table using the data from the large table. The table you create has fewer columns and rows, allowing your queries to run more efficiently.

11.7.8.1 Saving Data into a Table

DB2 allows users to create their own personal tables in the database. The data selected with a query can be saved into your own personal DB2 table using the SAVE DATA command. All rows selected by the query are saved into the database using the table name you specify. You are the owner of the table since you created it. As the owner, you have complete control over the table. The data within the table can be changed, used for additional querying, or even joined with other DB2 tables.

The table is saved in the assigned tablespace. If the data you are saving exceeds 25,000 rows, you need to contact the Customer Service Center for help in saving the data. When you are saving a large amount of data (25,000 rows or more), additional steps have to be taken for system efficiency. It is very important these steps be taken so the system runs better not only for you, but for other users as well.

1. Type **RUN FORMS_Q**.
2. Press **Enter**.

3. The data selected by the query is displayed on the screen in report format.

If you want to save the data into your own personal DB2 table, do the following:

4. Type **SAVE DATA AS DATA** at the Command prompt.
5. Press **Enter**.

A table is now stored in the database. The table DATA can now be used in the FROM statement of any query. When referring to the table, leave off the owner. DB2 assumes that when the owner name does not precede the table name, the UserID running the query is the owner.

The columns in the saved table are determined by the query you ran. The names of the columns in the table are determined by the form.

11.7.8.2 Erasing a Table

If you have saved data into a table and decide you no longer need the information, you should delete the table from the database. The command to erase a table is ERASE tablename.

1. Type **ERASE DATA** at the “Command” prompt.
You can only erase a table if you are its owner or creator.
2. Press **Enter**.
3. Press **End** key to return to the *QMF Home Panel*.

11.7.9 Procedures

Occasionally you may need to produce a report on a regular basis using a series of QMF commands. You could execute these steps together as one task by creating a procedure. A procedure, or PROC, allows users to execute a set of QMF commands by entering a single RUN command. An advantage of a procedure is that it reduces the amount of typing required, saving considerable time.

Assume you have a set of reports you run every Monday morning. You currently issue four commands on the QMF command line; they are:

- RUN BASIC_Q
- QPRINT RMDS BASQ
- RUN FORMS_Q
- QPRINT RMDS FMRQ

These commands can be put into a procedure. Then, when you run the procedure, the four commands are executed by issuing one command.

11.7.9.1 Creating a Procedure

To create a procedure:

1. Press the **PROC** key from the QMF Home Panel, or type **SHOW PROC** or **DI PROC** from the command line on a QMF panel.
2. A blank screen resembling a SQL Query panel displays.
Notice the word PROC in the top left corner in Figure 11–106.

```
PROC LINE 1

*** END ***

1=Help      2=Run      3=End      4=      5=Chart    6=Query
7=Backward  8=Forward  9=Form    10=Insert 11=Delete 12=Report
OK, PROC is displayed.
COMMAND ===> SCROLL ===> PAGE
```

Figure 11–106, PROC Panel

Each QMF command to be executed should be entered in the blank area on a separate line.

3. Press **Enter** to move the cursor to the top of the screen.
4. Type the following on separate lines:

```
RUN BASIC_Q
QPRINT RMDS BASQ
RUN FORMS_Q
QPRINT RMDS FRMQ
```

5. Press the **Run** key to run the procedure after all the commands are entered.

Each individual QMF command is executed in the order it was typed. Since you are running the commands through a procedure, you do NOT see any reports displayed on your screen. Only the final report is displayed once the PROC is finished. A procedure does not stop running until the end is reached or an error occurs.

11.7.9.2 Saving a Procedure

After you have created the PROC, you may wish to save it for later use. QMF does not keep a copy of your PROC to use later unless you save it. If a PROC hasn't been saved, and you change the PROC and rerun it, the former copy of the PROC is lost.

1. Type **SAVE PROC AS MONDAY_P**.
2. Press **Enter**.

PROCs can be stored in the database with specific names. The name cannot be the exact same as any previously saved form or query. If the name of the procedure is the same as a previously saved procedure, a prompt appears verifying that you want to replace the saved PROC. A PROC can be saved from any QMF command line.

11.7.9.3 Running a Procedure

A procedure can be run from the QMF command line using the RUN command.

1. Press the **End** key to return to the Home panel.
2. Type **RUN MONDAY_P** at the Command prompt.
3. Press **Enter**.

Each line of the procedure is executed, and the final report is displayed on your screen.

11.7.10 Getting General Information in QMF

1. Press the **End** key to display the QMF Home Panel.

11.7.10.1 Listing All the Tables You Can Access

You may want to find out the names of all the tables you can access. We have used the LIST command to determine which queries and forms we have saved. The LIST command can also be

used to list all tables you have access to. There are four main variations of the LIST TABLES command:

- All tables you have created
- All tables you have access to
- All tables a certain user created and has given you access to
- All accessible tables created by a certain user containing a certain character string in the table name

To list all the tables you have created in the database:

1. Type **LIST TABLES**.
2. Press **Enter**.

If you have not created any tables, you get an error message saying there were no objects found to satisfy your LIST command. When all the options are omitted from the LIST TABLES command, QMF assumes that you are looking for a list of tables that you have access to or created. You can also use a prompt panel to display a list.

3. Type **LIST ?** at the “Command” prompt.
4. Press **Enter**.
5. This displays a prompt panel, which asks for the type of list (in this case you would type **Table**), the owner, and the name. The prompt panel gives you information to help you fill out the fields.
6. Press **Enter** to display the list.

When you have a list of tables displayed, the Describe and Comments keys give you information about any of the tables.

11.7.10.2 Listing All the Columns in a Table

If you know the table you want to work with, but do not know all the column names, QMF can provide the column names for you. You can use the DRAW command to determine which columns exist in the table and what each column is called. The DRAW command must be issued from a blank QMF SQL Query Panel.

11.7.11 General Tasks in QMF

11.7.11.1 Interrupting a Query

When you run a query, a special panel called DATABASE STATUS PANEL displays (Figure 11–107).

```

+-----+
|                                     |
|          DATABASE STATUS PANEL          |
|                                     |
| Your request is currently being processed by the Database Manager. |
| The relative cost estimate for your request is:          922,041 |
|                                     |
+-----+

```

Figure 11–107, Database Status Panel

If the query is taking too long to run or you want to change your query:

1. Press the **ESC** key.
2. Press the **PF1** key (or the equivalent key or keys on your terminal) while the *Database Status Panel* displays.
3. QMF then tries to interrupt the RUN QUERY command, and you should see this message:

“DSQ50465 QMF command interrupted! Clear screen and press **ENTER**.”

4. After you press **Clear** and then **Enter** (or the equivalent key or keys on your terminal), the screen shown in Figure 11–108 displays.

```

DSQ50466 QMF command interrupted!      Do one of the following:
==> To continue QMF command,           type  CONT.
==> To cancel QMF command,             type  CANCEL.
==> To enter QMF debug,                 type  DEBUG.

```

Figure 11–108, QMF Command Interrupted Panel

To cancel the running of your query:

1. Type **CANCEL**.
2. Press **Enter**.

There are provisions to automatically interrupt or cancel a query that takes too long to run. If your query exceeds a time limit or retrieves an excessive number of rows, processing may be interrupted returning you to the SQL Query panel. The following message is displayed: “Query did not run. See SQL Query panel for error message.” From this panel you can press the Help key. The following message is displayed: “An unsuccessful execution due to resource limit being

exceeded.” The SQL CODE in the bottom right corner is -905. When this error occurs, you should contact the Customer Service Center for help on revising your query.

11.7.11.2 Retrieving a Previously Entered Command

You can save keystrokes by using RETRIEVE (RET is the minimum unique abbreviation) to re-display text that you have previously entered at the “Command” prompt. You can also enter ? (or multiple question marks) at the “Command” prompt to achieve the same result. One question mark (?) retrieves the most recent command you entered, two question marks (??) the command before that, and so on.

If you used a function key to perform an action and enter ? at the “Command” prompt, the last command issued at the “Command” prompt is retrieved, not the command executed by the function key.

11.7.11.3 Batch Facility

A QMF batch facility is available for executing queries or procedures in the TSO batch mode. Batch is a way to run a query or procedure in the background. You can issue a query or procedure to execute through batch and still have your terminal available for other activities. The batch facility is executed by issuing the BATCH command.

1. Type **BATCH** at the Command prompt.
2. Press **Enter**.

This displays the Query/PROC Batch Panel prompt (Figure 11–109), which allows you to enter the desired query or PROC to be run in batch mode.


```

----- QUERY/PROC BATCH PROMPT -----

OBJECT NAME   ===>                               Name of query or procedure
OR
Current OBJECT ===> NO           Save As ===>

QUERY or PROC ===> QUERY

For Procedure
  Arguments ===>

For Query
  FORM NAME   ===>
  OR
  Current FORM ===> NO           Save As ===>

PF1=Help PF3=End Enter=Process batch request

```

Figure 11-109, Query/PROC Batch Panel

- **OBJECT NM**—Name of the saved query or procedure.
- **CURRENT OBJECT**—Must either be YES or NO. If YES is specified, the current object in temporary storage is used. If NO is entered, the name in OBJECT NM is used.
- **SAVE AS**—This option only applies if CURRENT OBJECT is YES. This is the name for the current query or PROC to be saved as.
- **QUERY OR PROC**—Denotes the type of object to run; must be either QUERY or PROC.
- **ARGUMENTS**—Applies only when the object type is PROC. Any option arguments that should be passed to a procedure using logic.
- **FORM NM**—Applies only when the object type is QUERY. The name of a saved form to be used with the query. This is an optional prompt.
- **CURRENT FORM**—Must either be YES or NO. If YES is specified, the current form object in temporary storage is used. If NO is entered, FORM NM is used.
- **SAVE AS**—This option only applies if CURRENT FORM is YES. This is the name for the current form to be saved as.

Queries that run from batch mode cannot contain a substitution variable.

1. Type **BASIC_Q** beside OBJECT NM.
2. Type **QUERY** beside QUERY or PROC.

3. Press **Enter**.

When the BATCH facility is used to run a query, the Select Output Destination panel displays (Figure 11–110).

```
----- SELECT OUTPUT DESTINATION ----- Row 1 to 8 of 8
COMMAND==>                                SCROLL==> PAGE

REPORT ID      ==>                                10/26 10:15
REMOTE PRINTER ==>

S PRINTER  DEF  DESCRIPTION
. WAN      SEND TO T4 WAN MAILBOX
. DISKETTE OUTPUT TO PC DISKETTE
. DOWNLOAD DOWNLOAD TO PC FILE
. HP683    NSLDS CUSTOMER SERVICE CENTER
. L3800    VIRTUAL DATA CENTER HIGH SPEED PRINTER
. RMDS     ON-LINE REPORT DISPLAY
. RMT201   FALLS CHURCH DEVELOPMENT OFFICE
. TAPE     OUTPUT TO MAGNETIC TAPE
***** Bottom of data *****

F1=HELP      F2=SPLIT    F3=END      F4=QPRINT   F5=        F6=
F7=UP        F8=DOWN     F9=SWAP    F10=       F11=       F12=RETRIEVE
```

Figure 11–110, Select Output Destination Panel

The user can select a destination and report ID for the report. This panel has the same options as the output facility and works in the same manner. When the options are filled in, F4 or the command QRETURN submits the query and routes the output to the selected destination.

1. Type **QMF1** beside REPORT ID. REPORT ID is a four-character string used to identify the report at the given destination.
2. Type **S** beside RMDS.
3. Press **Enter**.
4. Type **QPRINT** at the Command prompt.
5. Press **Enter**.

The query is now submitted to batch. The data is produced and the output is sent to designated destination. You are now able to use your terminal for other activities while the query is being processed.

11.7.11.4 Running a PROC from BATCH

QMF batch can also be used to execute procedures. There are some rules and restrictions to writing batch mode procedures:

- QMF cannot prompt the user, so avoid any situations that cause prompts. The best way to do this is to begin all procedures run through batch with the command SET PROFILE (CONFIRM = NO).
- The PRINT command should not be used within a batch procedure. The QPRINT command should be used instead. If the QPRINT command is specified without parameters within the procedure, or if the QPRINT command is omitted from the batch procedure, the QMF Output Destination screen displays so the user can select a destination. This is the same panel you see when you issue the QPRINT command or F4 from the Report panel. (Refer to the section “Printing the Report” for additional information on the Output Destination panel.) F4 or QRETURN from this screen submits the procedure just as it does in the query. The Destination and Report ID specified in the “Output Distribution” prompt is used for all QPRINT statements omitting the parameters.
- Never use the name BATCH when saving a procedure.

11.8 QMF Help

Whether you are writing queries, formatting reports, editing a table, or creating procedures, QMF provides online help for all its functions. QMF Help lets you see information about QMF while you are using QMF. This information appears on the bottom half of your screen in a scrollable window. To locate help information, press the Help key from anywhere within QMF.

QMF Help is like a tree: the Help—Query Management Facility menu panel is the trunk, and the major topics menus are the major branches. These major topic menus branch to smaller menus and specific topic panels.

QMF Help varies slightly in how it allows you to access information, depending upon what part of QMF you are using.

11.8.1 Help from the Home Panel

This help panel appears on the bottom half of your screen if you press the **Help** key from the Home Panel. The QMF Help panel is shown in Figure 11–111.

```
Licensed Materials - Property of IBM
5645-DB2 5648-A70 (C) Copyright IBM Corp. 1982, 1998
All Rights Reserved.
IBM is a registered trademark of International Business Machines
+-----+
|                                     Help: Query Management Facility                                     |
|                                                                                                     |
| Select a topic.                                                                                       |
|                                                                                                     |
| 1. What's new in QMF Version 6                               1 to 7 of 15 |
| 2. Learning about QMF                                       |
| 3. Profile                                                  |
| 4. QMF commands                                             |
| 5. Prompted Query                                           |
| 6. SQL (Structured Query Language)                           |
| 7. Table Editor                                             |
+-----+
| F1=Help  F3=Exit  F7=Backward  F8=Forward  F9=Keys  F12=Cancel |
+-----+

OK, HELP performed. Please proceed.
```

Figure 11–111, QMF Help Panel

The Help: Query Management Facility panel is an overview menu for QMF Help. This menu lists the major topics offered by QMF Help.

To see the entire list of topics:

1. Scroll forward by pressing the **Forward** key.

2. Select any one of these topics by typing its number.
3. Press **Enter**.

11.8.2 Help Creating SQL Queries

If you do have questions while writing a SQL query, help is available; just press the Help key (Figure 11–112). When you press the Help key while writing a SQL query, the first thing you see in the pop-up panel is a table of contents (which you have to scroll to view in its entirety).

```

SQL QUERY                                MODIFIED  LINE    1

SELECT AMT,CURR_LEN_CODE
FROM LOAN
ORDER BY AMT
+-----+
|                                     Help: SQL Query -- Contents                                     |
|                                                                                                     |
| Select a topic or topic word (                                     )                                     |
|                                                                                                     |
|                                                                                                     |
|                                                                                                     |
| CREATING AND USING QUERIES                                     |
|   1. Composing and entering a query                                compose |
|   2. Inserting a line in a query                                qinsert |
|   3. Deleting a line from a query                                qdelete |
|   4. Creating a query using the DRAW command                    DRAW    |
|   5. Scrolling a SQL query                                    scroll   |
|                                                                                                     |
+-----+
| F1=Help  F3=Exit  F5=Menu  F7=Backward  F8=Forward  F9=Keys  F11=Index |
| F12=Cancel                                                                                                     |
+-----+

OK, HELP performed. Please proceed.

```

Figure 11–112, SQL Query Help Panel

Here you can find any aspect of SQL query writing you might want to know about. You are able to display any one of these help topics by typing either the corresponding number or its keyword (the word on the right part of the panel) in the input area. If an error message is displayed on the message line of the SQL Query panel, pressing the Help key displays a Help Panel pertaining to the error message rather than to create queries.

A keyword in a SQL query is a pre-defined word that has special meaning or function. For example, **SELECT** is the keyword used to retrieve data from a table. If you know the name of a keyword you want to learn about, you might prefer using the index instead of the table of contents.

To do so, press the Index key. The dialog panel for the SQL alphabetical index appears, listing topic names and numbers. To find the topic you need, enter the first letter of the keyword in the entry field. For example, you can enter an 'S' to go to the S's in the index. Scroll forward until the keyword appears, then enter the topic number (adjacent to the topic) in the entry field to access the Help Panel for that topic.

11.8.3 Help Using QMF Forms

As you have seen, there are many variations possible in formatting your report. You can change values on the form and display the report to see what effect your changes have made without having to rerun your query.

As you practice changing forms and displaying the reports to see what effect your changes have made, there are two tools to help you: **HELP** and **CHECK**.

11.8.3.1 Help

If you are not sure what changes can be made to any of the form panels, press the Help key when viewing the form panel in question. This displays a help panel.

If your cursor is in a specific Form Panel field when the Help key is pressed, a Help Panel related to the field displays. If an error message is displayed on the message line of the Form Panel, pressing the Help key displays a Help Panel pertaining to the error message rather than the form object.

11.8.3.2 Check

If QMF detects something wrong in the data you enter on one of the form panels, either **WARNING** or **ERROR** is displayed at the top of that form panel. To find out what is causing the problem, press the **Check** key.

The cursor is then positioned at the first field causing the error or warning. The message on the message line refers to the error or warning.

After correcting the problem, press the **Check** key to display the next error or warning message (if any).

11.8.4 QMF Function Key Descriptions

QMF Home Panel	
1=Help	Displays an index that prompts you to select a topic. The information appears on the screen as a scrollable help panel within a window.
2=List	The first time you issue the LIST command in a QMF session, the object type (queries, forms, etc.) must be specified. The most recently generated object list remains in temporary storage until you execute the LIST command again or end the QMF session.
3=End	ENDS a current operation and returns to an earlier menu or panel.
4=Show	Navigates among QMF object panels.
5=Chart	Displays a chart of the data currently in temporary storage.
6=Query	Displays the current QUERY panel.
7=Retrieve	Re-displays commands that were entered on the command line.
8=Edit Table	Displays EDIT TABLE Command Prompt. The name of the table to be edited is entered on this panel. Tables that are owned by you (as creator) are the only tables you have authority to edit.
9=Form	Displays default form.
10=Proc	Displays the PROC panel. A Procedure lets you execute a series of QMF commands with a single RUN command.
11=Profile	Your profile is general information kept in the database that describes your interaction with QMF. It tells QMF what data entry and presentation options to automatically specify for you.
12=Report	Displays the report generated by a query. You must run the query first in order to create the report.

SQL Query Panel	
1=Help	Displays information about the SQL Query panel.
2=Run	Displays the query from temporary storage.
3=End	Ends a current operation and returns to an earlier menu or panel.
4=N/A	
5=Chart	Displays a chart of the data currently in temporary storage.
6=Draw	Creates a basic SQL query.
7=Backward	Scrolls toward the top of the panel.
8=Forward	Scrolls toward the bottom of the panel.
9=Form	Displays the form currently in temporary storage.
10=Insert	Inserts a line into the SQL Query Panel at the cursor position.
11=Delete	Deletes a line from the SQL Query Panel at the cursor position.
12=Report	Displays the report generated by the query.

Prompted Query Panel	
1=Help	Displays information about Prompted Query.
2=Run	Runs current query and displays a report.
3=End	Ends a current operation and returns to an earlier menu or panel.
4=Show SQL	Displays the SQL equivalent of the displayed Prompted Query.
5=Change	Lets you change a column, condition, sort, or duplication row specification in your query.
6=Specify	Displays the Specify Dialog panel.
7=Backward	Scrolls toward the top of the query in the echo area.
8=Forward	Scrolls toward the bottom of the query in the echo area.
9=Form	Displays the current form.
10=Insert	Inserts a line into your query at the cursor position.
11=Delete	Deletes a line from your query at the cursor position.
12=Report	Displays the report generated by your query. You can view the report after the query has been run.

QBE Query Panel	
1=Help	Displays information about the QBE query panel.
2=Run	Runs your current query and displays a report.
3=End	Returns you to the QMF home panel.
4=Enlarge	Enlarges a table, comments box, or conditions box, or adds a new column.
5=Reduce	Reduces a table, comments box, or conditions box, or removes a column.
6=Draw	Creates a sample QBE table.
7=Backward	Scrolls toward the top of the panel.
8=Forward	Scrolls toward the bottom of the panel.
9=Form	Displays the form currently in temporary storage.
10=Left	Scrolls toward the left of the table.
11=Right	Scrolls toward the right of the table.
12=Report	Displays the report generated by a query.

PROC Panel	
1=Help	Displays information about the PROC panel.
2=Run	Displays the report generated by a query. The query must be run first in order to create the report.
3=End	Returns you to the QMF home panel.
4=N/A	
5=Chart	Displays a chart of the data currently in temporary storage.
6=Query	Displays the query currently in temporary storage.
7=Backward	Scrolls toward the top of the panel.
8=Forward	Scrolls toward the bottom of the panel.
9=Form	Displays the form currently in temporary storage.
10=Insert	Inserts a blank line into a procedure at the cursor position.
11=Delete	Deletes a line from a procedure at the cursor position.
12=Report	Runs the procedure that is currently in temporary storage.

11.8.5 QMF Commands

Command	Description
ADD	Adds rows to a table in the Table Editor. Adds global variables to the global variable list.
BACKWARD (BACK)	Scrolls toward the top of a scrollable area.
BOTTOM (BOT)	Scrolls to the end of your data or a report.
CHANGE	In Prompted Query, changes entries on a panel. In the Table Editor, modifies rows in a table or view.
CHECK	Checks form panels for mistakes.
CONVERT	Converts a relational prompted, SQL, or QBE query to a query with standard SQL syntax.
DELETE	Removes any of the following: <ul style="list-style-type: none"> • A line from an SQL query or a procedure; • A line from a panel in Prompted Query; • A line of column information on FORM.MAIN or FORM.COLUMNS; • A calculation line from a FORM.CALC panel; • A text line on FORM.BREAK, FORM.DETAIL, FORM.FINAL, or FORM.PAGE; • Error messages displayed below a query; and • A row from a table (using the Table Editor).
DISPLAY (DI)	Displays an object in temporary storage or in the database.
DRAW	Helps compose a basic SQL query from an SQL or QBE query panel.
EDIT (ED)	Lets you edit: <ul style="list-style-type: none"> • A QMF procedure or an SQL query in temporary storage, and • A table in the database (using the Table Editor).
END	Ends the current operation and displays the previous panel.
ERASE	Removes an object from the database.
EXPORT	Sends: <ul style="list-style-type: none"> • Queries, forms, procedures, reports, charts, and data from temporary storage to a TSO data set; and • Queries, forms, procedures, and tables from the database to a TSO data set.
FORWARD (FOR)	Scrolls toward the bottom of a scrollable area.
GET GLOBAL	Assigns values of QMF global variables to REXX variables in applications and procedures written in REXX.
HELP	Displays information about QMF.
IMPORT	Copies a TSO data set into temporary storage or into the database.
INSERT	Inserts a text line on a form panel, a column description line on a FORM.MAIN or FORM.COLUMNS panel, a line for a report calculation expression on a FORM.CALC panel, or a line on an SQL query, relational prompted query, or PROC panel.
INTERACT	Indicates that the QMF following it should be executed interactively; that is, provides access to confirmation and prompt panels.

Command	Description
LAYOUT	Creates a sample report when the data for that report is not yet available. This way you can visualize how your final report will look.
LEFT	Scrolls toward the left boundary of a QBE query or report panel.
LIST (LI)	Displays a list of QMF objects stored in the database. When a list is created, it exists throughout the QMF session or until a new list is requested using the LIST.
MESSAGE	<ul style="list-style-type: none"> Displays a message from the ISPF library. Generates QMF-like messages when an application ends. Stops running a QMF procedure.
NEXT	<ul style="list-style-type: none"> Navigates forward through the set of variations associated with the FORM.DETAIL panel, Displays the next column or the next definition when the form definition is displayed, and Displays the next row in the set of accessed rows in the Table Editor.
PREVIOUS (PRE)	<ul style="list-style-type: none"> Navigates backward through the set of variations associated with the FORM.DETAIL panel, Displays the previous column or the previous definition when the form definition is displayed, and Displays the row just added (Add Mode) or the most recent successful search criteria (Search Mode).
PRINT	Prints a copy of an object in temporary storage or an object stored in the database.
RESET object (RE)	Restores an object to its initial state.
RESET GLOBAL	Deletes the names and values of global variables that have been set using the SET GLOBAL.
RIGHT	Scrolls toward the right boundary of a QBE query or report panel.
RUN	Runs a procedure or query.
SAVE	Stores the contents of a temporary storage area into the database.
SET GLOBAL	Assigns values to global variables from the QMF line, from a procedure. You can define up to 10 substitution variables from the QMF line or in a procedure.
SET PROFILE	Changes values in your QMF profile. SET PROFILE is most useful within a procedure.
SHOW	Navigates among QMF object panels. Shows function keys are available on some panels to display fields that are too long to fit on the base panel or to display the SQL translation of a relational prompted query.
SPECIFY	In Prompted Query, displays a list from which you can specify the panel you want to see.
TOP	Scrolls to the beginning of: <ul style="list-style-type: none"> Your data, and A report.
TSO	Lets you issue a command in the MVS environment without terminating your use of QMF.

11.9 RMDS Form IDs

Organization	Division/Service	Form IDs
Office of the General Counsel	Operations Office	NCOO
Office of the Inspector General	Director, Administrator Services	NOIG
Office of Management and Budget	Chief Financial Officer	NCFO
Office of The Chief Financial Officer	Credit Management Improvement Staff	NCMI
Office of the Undersecretary	Program Budget Execution Branch	NPBE
	Postsecondary Analysis Division	NPAD
	Budget Service	NBUD
	Planning and Evaluation Services Division	NPES
Office of Student Financial Assistance Programs	Policy Development Staff	NPDS
	Chief, Executive Office	NCEO
Office of Student Financial Assistance Programs	Policy, Training and Analysis Service	NPTA
	Program Systems Services	NPSS
	Institutional Participation Oversight Service	NIPO
	Quality Improvements and Operations Planning Staff	NQIO
Office of Student Financial Assistance Programs/Field	Region I Program Assistant	NF01
	Region II Program Assistant	NF02
	Region III Program Assistants	NF03
	Region IV Program Assistants	NF04
	Region V Program Assistant	NF05
	Region VI Program Assistant	NF06
	Region VII Program Assistant	NF07
	Region VIII Program Assistant	NF08
	Region IX Program Assistant	NF09
	Region X Program Assistant	NF10
	Debt Collection Service	NDCS
	Guarantor and Lender Oversight Staff	NGLO
	Accounting and Financial Mgmt.	NAFM
Price Waterhouse	Systems Operational Support	NSOS

11.10 Public Inquiry Contractor (PIC) Users

PIC users access the NSLDS mainframe through the contractor network from the *NCS Information Services Division* menu. When the menu appears, the cursor moves automatically to a Choice Entry field in the lower left portion of the screen. To access NSLDS from the *NCS Information Services Division* menu, follow these steps:

1. Select NSLDS access by typing **PICNSL** in the Choice Entry field (Figure 11–113). You are not restricted to the four options listed on the screen.

```

      NN      NN      CCCCCCCCC      SSSSSSSSS
      NNN      NN      CCCCCCCCC      SSSSSSSSSSS
      NNNN      NN      CC      CC      SS      SS
      NN NN      NN      CC      SS
      NN NN      NN      CC      SSS
      NN NN      NN      CC      SSSSSSSSSSS
      NN NN      NN      CC      SSSSSSSSSSS
      NN NN      NN      CC      SSS
      NN      NNNN      CC      SS
      NN      NNN      CC      CC      SS      SS
      NN      NN      CCCCCCCCC      SSSSSSSSSSS
      NN      N      CCCCCCCCC      SSSSSSSSS

```

INFORMATION SERVICES DIVISION - SY2

Type LOGON userid or TSO userid for TSO Logon
 Type CICS for CICS Production System Signon
 Type CICSPMDE for MDE/AFSA CICS Production System
 Type CICSTEST for CICS Test System Signon

Figure 11–113, NCS Information Services Division Menu

2. Press **ENTER**. The system displays the *CICS Logon* screen (Figure 11–114).

```

ESGD INFORMATION SERVICES      CICSNSLP SYSTEM
USERID:      -
PASSWORD:      NEW PASSWORD (IF DESIRED):

DISCLOSURE STATEMENT
The user understands that the Department of Education, its agents and
sub-contractors have signed up to meet the requirements of the PRIVACY ACT OF
1974 (as amended). As such, by entering this system, the user hereby verifies
that they have read the PRIVACY ACT OF 1974 (as amended), that the user
understands the requirements of the ACT, and that the user has no remaining
questions.

MONITORING NOTICE
This system is for the user of authorized users only. Individuals using this
computer system without authority are subject to having all of their
activities on this system monitored and recorded by system personnel. In the
course of monitoring individuals improperly using this system, or in the
course of system maintenance, the activities of authorized users may also be
monitored. Anyone using this system expressly consents to such monitoring and
is advised that if such monitoring reveals possible evidence of criminal
activity, system personnel may provide the evidence of such monitoring to law
enforcement officials.

```

Figure 11–114, CICS Logon Screen

